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Version v2027.3 · October 2026

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CredGuild · CFA® Program Level I · 398 Free Practice Questions
2027 curriculum · Version v2027.3 · Generated October 6, 2026

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CFA® PROGRAM LEVEL I · FREE PRACTICE QUESTIONS

Quantitative Methods

Questions 1–48 · 11 readings

1 Rate of Return

Question 1

A macro strategist's dashboard displays the central bank policy interest rate, the USD/JPY exchange rate and the level of the Euro Stoxx 50 index. These three items are best classified as:

A financial assets.

B financial instruments.

C financial indicators.

Question 2

Olivia Brandt put €50,000 into a sector fund that rose 20% in year one and then dropped 20% in year two. To express the true average yearly change in her wealth, she should use the:

A arithmetic mean return.

B geometric mean return.

C capital distribution return.

Question 3

A company must pay a supplier €250,000 in exactly one year. Its treasurer discounts this payment at a stated annual rate of 6%. Under which compounding convention will the present value of the payment be *lowest*?

A Annual compounding.

B Monthly compounding.

C Semiannual compounding.

Question 4

Which statement about the real risk-free interest rate is *most accurate*? It:

A includes a premium for expected inflation but no premium for default risk.

B excludes both expected inflation and any uncertainty about the amount or timing of cash flows.

C includes a liquidity risk premium because instruments paying this rate may be hard to sell quickly.

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Question 5

The managers of the Arcadia Opportunities Fund are considering borrowing to raise the fund's investment exposure from €100 million of investor capital to €150 million. Compared with remaining unleveraged, this borrowing will *most likely*:

A magnify gains but limit losses.

B diminish gains and magnify losses.

C magnify both gains and losses.

2 Types of Financial Returns

Question 6

Tomasz Wierzbicki holds a portfolio of traditional fixed-coupon bonds. Which statement *best* describes how his total return is typically made up?

A Most of the return comes from the fixed coupon payments, with price return making up a smaller share.

B Most of the return comes from changes in the bonds' market prices, with the coupons contributing a smaller share.

C The fixed coupons and the price return typically contribute roughly equal shares.

Question 7

An analyst compares the multiyear return history of Corvane Mining shares with that of a broad, diversified market index. Which conclusion is *most accurate*?

A Because the index is less volatile, the arithmetic mean will overstate the index's multiperiod return by more than it overstates the stock's.

B Because the stock is more volatile than the index, its geometric mean return tends to be pulled down relative to the index's.

C The arithmetic mean return will tend to understate the stock's multiperiod performance relative to the index.

Question 8

Rafael Oduya's retirement account holds 65% in equities and 35% in government bonds. He expects a total return of 9.0% on the equities and 3.8% on the bonds. The account's expected total return is *closest* to:

A 7.18%.

B 6.40%.

C 5.62%.

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3 Benchmarking Returns

Question 9

Hannah Kowalczyk makes the following trades in Silverleaf Foods shares, with no taxes or transaction costs:

- Today: buys one share at $30.00.
- One year from today: buys a second share at $36.00.
- Two years from today: sells both shares at $41.00 each.

Silverleaf pays a dividend of $1.50 per share at the end of year 1 and $2.00 per share at the end of year 2. Dividends are not reinvested. Kowalczyk's required return is 10%. Her money-weighted rate of return is *closest* to:

A 15.9%.

B 21.3%.

C 22.2%.

Question 10

Which of the following statements about a total return index is *most accurate*?

A Its value reflects only the price changes of its constituent securities.

B It grows from its beginning value by compounding each period's total return.

C It can rise more slowly than a price return index built from the same securities with the same weights.

Question 11

The prices of the stocks in a price-weighted index add up to $270, and the divisor is 1.80. One constituent, trading at $90, then completes a 3-for-1 stock split. The divisor that should be used immediately after the split is *closest* to:

A 0.60.

B 1.40.

C 1.80.

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Question 12

An equal-weighted index contains the three stocks shown in the table below. After the period's price changes, and before any rebalancing, Kestrel Aerospace's index weight is *closest* to:

Equal-weighted index: reference values and price returns for the period

Stock	Reference value at start	Price return for the period
Kestrel Aerospace	$25,000	+12%
Linden Packaging	$25,000	+4%
Oakmere Retail	$25,000	−6%

A 33.3%.

B 34.8%.

C 36.1%.

Question 13

The sponsor of the Harrowgate Midcap 200 Index removes Velden Tools, which was delisted after filing for bankruptcy, and adds Corvin Optics, which now meets the index's size criteria. This change is *best* described as:

A reconstitution.

B rebalancing.

C redefinition.

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4 Time Value of Money

Question 14

Brisa Therapeutics expects to receive the licensing fees shown in the table below. Its finance team discounts them at a stated annual rate of 6%, compounded monthly. The present value of the three fees today is *closest* to:

Expected licensing fees

Received at the end of year	Fee
1	$5,000
2	$9,000
3	$12,000

A $22,722.

B $22,802.

C $25,708.

Question 15

Brightwater Utilities has preferred stock outstanding that pays a fixed annual dividend of $2.60 per share with no maturity date. An investor who requires a 7.2% rate of return should be willing to pay, per share, a maximum of *closest* to:

A $18.72.

B $33.69.

C $36.11.

Question 16

Chiara Lombardi holds a 7-year corporate bond with a 5.3% annual coupon. Her monthly statement shows that the bond's yield to maturity rose from 5.1% last month to 5.6% this month. Over the month, the bond's price has *most likely*:

A decreased.

B increased.

C remained flat.

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Question 17

A small business project is expected to generate the following cash flows:

Expected year-end cash flows

End of year	Cash flow
1	$3,000
2	$5,000
3	$0
4	−$1,500

At a discount rate of 8%, the present value of this cash flow stream is *closest* to:

A $5,962.

B $7,064.

C $8,167.

Question 18

A stock trades at $40. In one year it will either rise by 25% or fall by 20%. A one-year call option on the stock has an exercise price of $44, and the risk-free rate is 4%. Using a one-period binomial model, the value of the call option today is *closest* to:

A $2.88.

B $3.08.

C $3.20.

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5 Skewness and Kurtosis

Question 19

The table below shows one-year returns for seven equity funds.

One-year returns of seven equity funds

Fund	Return (%)
Harbor Growth	5
Juniper Value	11
Lakeview Income	10
Meridian Core	11
Northgate Select	15
Oakmont Small Cap	3
Pinecrest Global	17

Which of the following statements about these returns is *most accurate*?

A The mean is equal to the median.

B The mean is equal to the mode.

C The median is equal to the mode.

Question 20

Priya Raman plans to model the monthly percentage changes in a copper price index. Her statistical tests will be most reliable if the series is stationary, which means that:

A its geometric mean and arithmetic mean are the same.

B its mean and median both lie within its interquartile range.

C the mean and variance of its distribution do not change over time.

Question 21

A histogram of a biotech fund's daily returns shows a long tail stretching to the right, created by a few very large gains. For this unimodal distribution, which relationship among the measures of central tendency is *most likely*?

A mean < median < mode

B mean = median = mode

C mean > median > mode

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Question 22

The covariance between the returns on Norland Utilities and Quarry Point Materials is 21.6 (percent squared). The standard deviation of Norland's returns is 8% and that of Quarry Point's returns is 6%. The correlation coefficient of the two return series is *closest* to:

A +0.34.

B +0.45.

C +0.60.

Question 23

A multi-asset portfolio produced the returns shown below over the last four years.

Annual returns of a multi-asset portfolio (sample)

Year	Return
1	19.0%
2	7.5%
3	−9.6%
4	4.9%

Treating these returns as a sample, their coefficient of variation is *closest* to:

A 0.46.

B 1.87.

C 2.16.

6 Lognormal Distribution

Question 24

A random variable X can take only the values 0, 1, 2 and 3. Which of the following proposed functions is a valid probability function for X?

A $p(0) = 0.40, p(1) = 0.35, p(2) = 0.30, p(3) = -0.05$

B $p(x) = 0.30$ for each of the four values

C $p(x) = (x + 1)/10$

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Question 25

A consultant at Northgate Partners has estimated the scenario returns shown in the table below. The standard deviation of returns on Fund Alder is *closest* to:

Scenario forecasts for Fund Alder and Fund Birch

Scenario	Probability	Return on Fund Alder	Return on Fund Birch
Boom	20%	19%	12%
Expansion	25%	15%	11%
Stagnation	35%	9%	10%
Contraction	20%	1%	8%

A 1.34%.

B 6.18%.

C 6.78%.

Question 26

Each week, the fixed-income desk at Corrib Securities submits competitive bids in 25 separate government bond auctions. The desk's chance of winning an allocation is 0.36 in every auction, and the result of one auction does not affect any other. For the number of auctions the desk wins in a week, the expected value and the variance are, respectively:

A 16.0 and 5.76.

B 9.0 and 2.40.

C 9.0 and 5.76.

Question 27

A commodity desk simulates thousands of possible copper price paths and wants to be certain that no simulated price is ever negative. Which distribution for the price level is *best* suited to this goal?

A Normal.

B Logistic.

C Lognormal.

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Question 28

A high-yield portfolio holds 40% BB-rated bonds and 60% B-rated bonds. Historically, 10% of BB-rated bonds and 30% of B-rated bonds default within five years. If a bond chosen at random from the portfolio defaults within five years, the probability that it was BB-rated is *closest* to:

A 0.100.

B 0.182.

C 0.333.

7 Null Hypothesis

Question 29

A fixed-income analyst splits the universe of investment-grade corporate bonds into five credit-rating buckets. From each bucket she randomly draws a number of bonds proportional to that bucket's share of the universe and then combines the draws into one sample of 400 bonds. Her approach is best described as:

A simple random sampling.

B systematic sampling.

C stratified random sampling.

Question 30

A multi-asset portfolio is worth €40 million, and its daily returns have a standard deviation of 1.2%. Using the parametric method and assuming a daily mean return of zero, the portfolio's daily 5% value at risk (VaR) is *closest* to:

A €0.79 million.

B €0.94 million.

C €1.12 million.

Question 31

A researcher keeps her sample size unchanged but tightens the significance level of her test from 5% to 1%. As a result, the probability of:

A a Type II error increases.

B rejecting a true null hypothesis increases.

C failing to reject a false null hypothesis decreases.

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Question 32

An analyst tests whether a currency strategy's mean daily return is zero and obtains a p-value of 0.021. Which conclusion is *most accurate*?

A The null hypothesis is rejected at the 1% significance level.

B There is a 2.1% probability that the null hypothesis is true.

C The null hypothesis can be rejected at any significance level above 2.1%.

Question 33

A credit researcher compiles the following default data for bond issuers in three sectors:

Bond issuers by sector and default status

Sector	No default	Technical default	Actual default	Total
Energy	94	16	15	125
Healthcare	108	9	13	130
Utilities	126	8	16	150
Total	328	33	44	405

Assuming sector and default status are independent, the expected number of energy issuers in technical default is *closest* to:

A

B

C

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8 Portfolio Standard Deviation

Question 34

Nadia Okafor builds the two-fund portfolio shown in the table below and does not rebalance it at any point. Okafor's portfolio return for Year 2 is *closest* to:

Okafor portfolio: starting values and annual returns

Holding	Value at start of Year 1	Return in Year 1	Return in Year 2
Equity fund	$60,000	20%	−10%
Bond fund	$40,000	2%	6%

A −2.00%.

B −3.60%.

C −4.21%.

Question 35

Brookline Endowment holds an equally weighted portfolio of 50 stocks. The average variance of returns of the individual stocks is 0.09, and the average correlation between pairs of stocks is 0.30. Using the approximation for a portfolio with a large number of assets, the standard deviation of the portfolio's returns is *closest* to:

A 2.7%.

B 9.0%.

C 16.4%.

Question 36

An adviser measures a client's utility with the function $U = E(r) - \frac{1}{2}A\sigma^2$ and estimates the client's coefficient of risk aversion, A, at 3. Based on the table below, which fund gives this client the highest utility?

Funds under consideration

Fund	Expected return	Standard deviation of returns
Northgate Growth Fund	11%	20%
Westbury Balanced Fund	8%	12%
Eastholm Income Fund	6%	5%

A Northgate Growth Fund.

B Westbury Balanced Fund.

C Eastholm Income Fund.

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Question 37

Using the capital asset pricing model (CAPM) and the data in the table below, the expected return on Gorham Textiles shares is *closest* to:

Inputs for Gorham Textiles

Input	Value
Beta of Gorham Textiles	0.8
Market risk premium	6%
Risk-free rate	3%

A 7.8%.

B 5.4%.

C 4.8%.

9 Simulation of Financial Asset Prices and Returns

Question 38

Which of the following is *most likely* an advantage of historical simulation compared with a parametric approach that assumes normally distributed returns?

A It remains reliable after a regime change that makes the future unlike the past.

B It captures fat tails and volatility clustering without imposing a distributional assumption.

C It can generate outcomes more extreme than any observed during the lookback period.

Question 39

An analyst builds each bootstrap scenario for an eight-quarter horizon by drawing from a dataset of 40 historical quarterly returns. Within a single scenario, any one historical observation can be drawn:

A up to eight times.

B only once.

C up to 40 times.

Question 40

Compared with historical simulation and bootstrap resampling, an advantage of Monte Carlo simulation is that it:

A has lower data requirements.

B produces results that are easier to explain.

C can model hypothetical scenarios.

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10 Least Squares Regression

Question 41

A credit analyst gathers data on 80 bond issuers at a single date to see whether an issuer's interest coverage ratio helps explain the yield spread on its bonds. In her simple linear regression, the dependent variable is:

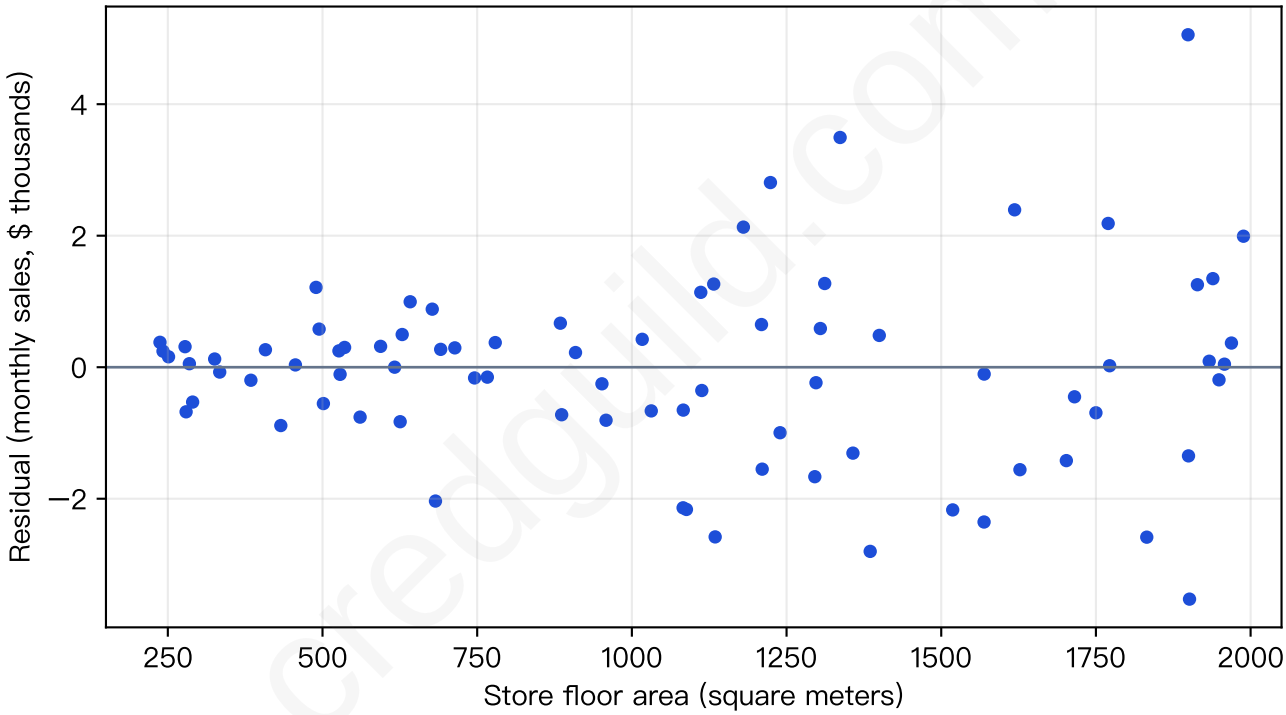
A the interest coverage ratio, because it is the explanatory variable.

B the yield spread, because it is the variable being explained.

C neither, because data from a single date cannot be used in a regression.

Question 42

An analyst regresses the monthly sales of 80 stores on each store's floor area. The figure below plots the regression residuals against floor area. The pattern *most likely* indicates that the regression's residual term:



Residuals plotted against store floor area

A does not have a constant variance.

B is not normally distributed.

C is not independently distributed.

Question 43

An analyst regresses a fertilizer producer's monthly stock returns on monthly changes in a crop price index, using 32 observations. The estimated coefficients are in the table below. She expects next month's change in the index to be −0.015 and computes a standard error of the forecast of 0.028. Critical t-values with 30 degrees of freedom are 1.310 with 10% in one tail and 1.697 with 5% in one tail. The 90% prediction interval for next month's return is *closest* to:

Regression of monthly stock returns on crop price changes

	Coefficient	Standard error
Intercept	0.0040	0.0035
Crop price change	0.6500	0.2100

A −0.0533 to 0.0418.

B −0.0424 to 0.0309.

C −0.0338 to 0.0613.

Question 44

To estimate a stock's beta, an analyst regresses the stock's excess returns on the market risk premium and obtains an intercept of −0.15 and a slope of 0.72. Based on this model, the stock's beta is:

A negative.

B between 0 and 1.

C greater than 1.

11 Machine Learning in Finance

Question 45

A new analyst at Ottery Capital drafts three glossary entries for the firm's research team. Which entry about fintech is *most accurate*?

A Fintech covers only payment apps and online banking services sold to consumers.

B Fintech is another name for financial data science, the analysis of financial data.

C Fintech is the meeting of finance and technology, such as tools that aid quantitative analysis.

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Question 46

Voice recordings of earnings calls, satellite images of shipping ports and posts on social media platforms are all examples of:

A unstructured data.

B structured data.

C semi-structured data.

Question 47

A data team at Larchmont Analytics is documenting the steps it uses to process data. Which of the following statements about these data processing methods is *most accurate*?

A Search is the process of archiving data so that they can be retrieved later.

B Curation involves cleaning the data, for example by correcting errors and dealing with missing values, so that the data are of good quality.

C Capture is the process of moving data from a storage medium to the analytical tool that will use them.

Question 48

A lender at Brackenridge Credit trains a model on records of past borrowers, each tagged with the borrower's financial ratios and whether the borrower eventually defaulted. The model learns to map the ratios to the default outcome and is then applied to new loan applicants. This machine learning process is best described as:

A unsupervised learning.

B supervised learning.

C reinforcement learning.

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QUANTITATIVE METHODS

Answers and explanations

Answer key: 1. C · 2. B · 3. B · 4. B · 5. C · 6. A · 7. B · 8. A · 9. B · 10. B · 11. B · 12. C · 13. A · 14. A · 15. C · 16. A · 17. A · 18. B · 19. C · 20. C · 21. C · 22. B · 23. C · 24. C · 25. B · 26. C · 27. C · 28. B · 29. C · 30. A · 31. A · 32. C · 33. A · 34. C · 35. C · 36. B · 37. A · 38. B · 39. A · 40. C · 41. B · 42. A · 43. A · 44. B · 45. C · 46. A · 47. B · 48. B

Question 1 **Answer: C**

Interest rates, exchange rates and market index levels are financial indicators: observable measures of value that do not produce any cash flows on their own. They matter because they are used to value other things, such as the securities and contracts that are financial instruments.

Why the other options are wrong

- **A.** Financial assets are items an investor can own that carry value, such as cash, shares or loans. Nobody owns an interest rate or an index level, and these items pay nothing to anyone.
- **B.** Financial instruments are standardized vehicles for trading financial assets in markets, such as listed shares, bonds or standardized derivative contracts. An index *level* or an exchange *rate* is a measurement and cannot itself be traded.

Key takeaway An indicator is an observed measure (rates, FX, index levels); an instrument is a standardized, tradable vehicle; an asset is something an investor owns that has value.

Reading 1: Returns of Financial Assets and Instruments. Notes: credguild.com/cfa/level-1/notes/quantitative-methods/rate-of-return/

Question 2 **Answer: B**

The geometric mean builds in compounding, so it is the constant annual rate that turns the starting value into the ending value. Here it is $\sqrt{1.20 \times 0.80} - 1 = -2.02\%$, consistent with her €50,000 becoming €60,000 and then €48,000.

Year 1: $50{,}000 \times 1.20 = €60{,}000$; Year 2: $60{,}000 \times 0.80 = €48{,}000$.

Geometric mean: $(1.20 \times 0.80)^{1/2} - 1 = 0.96^{0.5} - 1 = -2.02\%$. Check: $50{,}000 \times 0.9798^2 = €48{,}000$.

Why the other options are wrong

- **A.** The arithmetic mean is $(20\% - 20\%)/2 = 0\%$, implying her wealth was unchanged, yet she ended with €48,000, less than she started with. The arithmetic mean treats each year as if the same €50,000 were invested.
- **C.** The capital distribution return measures only cash income (dividends, interest) relative to the beginning price. It says nothing about the compound effect of price movements over two years.

Key takeaway A gain and loss of equal percentage size leaves the investor worse off; only the geometric mean shows it.

Reading 1: Returns of Financial Assets and Instruments. Notes: credguild.com/cfa/level-1/notes/quantitative-methods/rate-of-return/

Question 3 **Answer: B**

For a given stated annual rate, more frequent compounding raises the effective rate used to discount the cash flow. A higher effective discount rate means a smaller present value (and, correspondingly, a larger future value for a sum invested today). Monthly is the most frequent of the three conventions, so it produces the lowest present value.

Annual: $PV = 250{,}000/1.06 = €235{,}849.06$

Semiannual: $PV = 250{,}000/(1 + 0.06/2)^2 = 250{,}000/1.0609 = €235{,}648.98$

Monthly: $PV = 250{,}000/(1 + 0.06/12)^{12} = 250{,}000/1.061678 = €235{,}476.33$

Why the other options are wrong

- **A.** Annual compounding is the *least* frequent convention, so it produces the *highest* present value: €235,849.
- **C.** Semiannual compounding gives €235,649. That is lower than annual but still higher than monthly, because compounding twice a year gives a smaller effective discount rate than compounding 12 times.

Key takeaway More compounding periods mean a higher effective rate, so a higher FV and a lower PV.

Reading 1: Returns of Financial Assets and Instruments. Notes: credguild.com/cfa/level-1/notes/quantitative-methods/rate-of-return/

Question 4 **Answer: B**

The label "risk-free" rules out any doubt over the amount or timing of the cash flows (so no default risk), while "real" rules out any allowance for expected inflation. The real risk-free rate therefore contains neither, reflecting only time preference.

Why the other options are wrong

- **A.** A rate that includes an inflation premium but has zero probability of default is a *nominal* risk-free rate, not a real one.
- **C.** A liquidity risk premium is compensation for a type of risk. A risk-free rate contains no risk premiums of any kind, including a liquidity risk premium.

Key takeaway Real risk-free rate: no inflation, no risk premia. Adding expected inflation gives the nominal risk-free rate; adding risk premia to that gives the required return on a risky asset.

Reading 1: Returns of Financial Assets and Instruments. Notes: credguild.com/cfa/level-1/notes/quantitative-methods/rate-of-return/

Question 5 **Answer: C**

Leverage lets investors control more assets than their own capital would allow. When the portfolio return exceeds the borrowing cost, the return on equity rises; when the portfolio loses money, the loss on the smaller equity base is larger. Leverage magnifies results in both directions and offers no protection against losses.

Illustration with a 5% borrowing rate: a portfolio return of +10% gives $(15 - 2.5)/100 = +12.5\%$ vs. +10% unleveraged; a portfolio return of −10% gives $(-15 - 2.5)/100 = -17.5\%$ vs. −10% unleveraged.

Why the other options are wrong

- **A.** Borrowing does not cushion losses. If the unleveraged portfolio loses money, the fund still owes the borrowed amount plus interest, so the loss on investor capital is larger, not smaller.

- **B.** When the portfolio earns more than the interest rate on the borrowing, leverage *raises* the return on investor capital, so gains in good years are amplified.

Key takeaway Leverage magnifies losses, and it magnifies gains as long as the portfolio return exceeds the borrowing rate.

Reading 1: Returns of Financial Assets and Instruments. Notes: credguild.com/cfa/level-1/notes/quantitative-methods/rate-of-return/

Question 6 **Answer: A**

A bond's coupon is a fixed capital distribution, and for traditional bonds it is usually the largest part of total return. The bond's market price can move while it is held, which creates some price return, but that is normally the smaller part.

Why the other options are wrong

- **B.** Price return as the dominant source describes equities, whose value is driven by changes in earnings prospects. It does not fit traditional fixed-coupon bonds.
- **C.** There is no general tendency toward an equal split. For traditional bonds the fixed coupon usually dominates.

Key takeaway Bonds: return mainly from fixed capital distributions (coupons). Equities: return mainly from price return.

Reading 2: Types of Financial Returns. Notes: credguild.com/cfa/level-1/notes/quantitative-methods/types-of-financial-returns/

Question 7 **Answer: B**

Volatility reduces compound (geometric) returns. A single stock is less diversified and more volatile than an index, so its geometric mean return tends to fall further below its arithmetic mean than the index's does. For similar arithmetic means, the stock therefore compounds to a lower return than the index.

Illustration: returns of $+25\%$ and -20% have an arithmetic mean of 2.5%, but $(1.25 \times 0.80)^{1/2} - 1 = 0\%$ geometric. Steadier returns of $+3\%$ and $+2\%$ have an arithmetic mean of 2.5% and a geometric mean of $(1.03 \times 1.02)^{1/2} - 1 = 2.50\%$. Same arithmetic mean, but the more volatile series compounds to less.

Why the other options are wrong

- **A.** The overstatement grows with volatility. The arithmetic mean overstates the multiperiod return of the more volatile individual stock by more than that of the less volatile index.
- **C.** The arithmetic mean ignores the compounding drag of volatility, so it overstates, not understates, the multiperiod performance of a volatile stock.

Key takeaway More volatility widens the gap between the arithmetic and geometric means and lowers the compound return of the volatile asset.

Reading 2: Types of Financial Returns. Notes: credguild.com/cfa/level-1/notes/quantitative-methods/types-of-financial-returns/

Question 8 **Answer: A**

A portfolio's expected return is the weighted average of the expected returns of its components, using the allocation weights.

$$E(R_p) = 0.65 \times 9.0\% + 0.35 \times 3.8\% = 5.85\% + 1.33\% = 7.18\%$$

Adding the two returns without weights, $9.0\% + 3.8\% = 12.80\%$, counts each asset class as if it had a 100% allocation; the weights must sum to 100%, which gives the weighted 7.18%.

Why the other options are wrong

- **B.** 6.40% is the simple average $(9.0\% + 3.8\%)/2$. It would only be right with a 50/50 allocation.
- **C.** 5.62% swaps the weights, $0.35 \times 9.0\% + 0.65 \times 3.8\%$, putting 65% on the bonds. Each weight must go with its own asset class.

Key takeaway Portfolio expected return $= \sum_i w_i E(R_i)$; with non-negative weights it must lie between the lowest and highest component returns.

Reading 2: Types of Financial Returns. Notes: credguild.com/cfa/level-1/notes/quantitative-methods/types-of-financial-returns/

Question 9 **Answer: B**

The money-weighted return is the internal rate of return of the cash flows the investor actually pays and receives. At the end of year 1 the $1.50 dividend on the first share is netted against the $36.00 purchase. At the end of year 2 she receives the sale proceeds and the dividends on two shares. The 10% required return is not an input.

t	Cash flow
0	−30.00
1	+1.50 − 36.00 = −34.50
2	2 × 41.00 + 2 × 2.00 = +86.00

$$-30.00 - \frac{34.50}{1+r} + \frac{86.00}{(1+r)^2} = 0 \;\Rightarrow\; r = 0.2131 \approx 21.3\%$$

TI BA II Plus: `[CF] [2ND] [CLR WORK]`; CF0 = −30; C01 = −34.5, F01 = 1; C02 = 86, F02 = 1; `[IRR] [CPT]` = 21.31.

Why the other options are wrong

- **A.** 15.9% is the IRR after ignoring both dividends (CF1 = −36, CF2 = +82). Dividends that are paid out are cash received by the investor.
- **C.** 22.2% is the time-weighted return: $HPR_1 = (36 - 30 + 1.5)/30 = 25.0\%$ and $HPR_2 = (41 - 36 + 2)/36 = 19.4\%$, so $\sqrt{1.250 \times 1.194} - 1 = 22.2\%$. This measure ignores the fact that more money was invested in year 2.

Key takeaway For an MWR share problem, net the dividend received against any purchase on the same date, and include dividends on all shares held at the end.

Reading 3: Benchmarking Returns. Notes: credguild.com/cfa/level-1/notes/quantitative-methods/benchmarking-returns/

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Question 10 **Answer: B**

The value of a total return index grows by compounding its periodic total returns: $V_n = V_0(1 + R_1)(1 + R_2) \cdots (1 + R_n)$. Each periodic total return includes both price changes and income such as dividends and interest.

Why the other options are wrong

- **A.** An index whose value reflects only price changes is a price return index. A total return index also includes the income (dividends, interest, other distributions) paid by the constituents.
- **C.** Income paid by the constituents can never be negative. A total return index therefore always rises at least as fast as (or falls no faster than) the matching price return index.

Key takeaway Total return index ≥ price return index; values compound by geometric linking.

Reading 3: Benchmarking Returns. Notes: credguild.com/cfa/level-1/notes/quantitative-methods/benchmarking-returns/

Question 11 **Answer: B**

A stock split must not change the value of a price-weighted index. The divisor is reset so that the new sum of prices, with the splitting stock at its post-split price, gives the same index value as before.

Index value before the split: $270/1.80 = 150.0$

Post-split price of the stock: $90/3 = \$30$, so the sum of prices falls by \$60 to \$210.

$$D_{new} = \frac{210}{150.0} = 1.40$$

Why the other options are wrong

- **A.** 0.60 treats every constituent as splitting 3-for-1 ($270/3 = 90$, and $90/150 = 0.60$). Only the one stock's price is divided by 3.
- **C.** 1.80 is the old divisor. If it were kept, the index would drop to $210/1.80 = 116.7$ purely because of the split.

Key takeaway Price-weighted index + split: recompute the sum with the new price, keep the index value, solve for the new (smaller) divisor.

Reading 3: Benchmarking Returns. Notes: credguild.com/cfa/level-1/notes/quantitative-methods/benchmarking-returns/

Question 12 **Answer: C**

An equal-weighted index starts with the same weight in each stock. After prices move, each stock's weight is its new value divided by the new total, until the index is rebalanced. Stocks that outperformed now carry more than one-third.

Stock	Start value	Return	End value	End weight
Kestrel	25,000	+12%	28,000	36.1%
Linden	25,000	+4%	26,000	33.5%
Oakmere	25,000	−6%	23,500	30.3%
Total	75,000		77,500	100%

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$$w_{Kestrel} = \frac{28{,}000}{77{,}500} = 36.1\%$$

A tempting shortcut is to grow the starting one-third weight by Kestrel's own return: $33.33\% \times 1.12 = 37.33\%$. That is wrong because it keeps the old 75,000 total in the denominator; the new weight must divide the new position value by the new total value (77,500).

Why the other options are wrong

- **A.** 33.3% is the starting weight. It assumes the weights stay equal after price changes, but equal weights are only restored when the index is rebalanced.
- **B.** 34.8% drops the minus sign on Oakmere's −6% return, so the new total becomes $25{,}000 \times (1.12 + 1.04 + 1.06) = 80{,}500$ and $28{,}000/80{,}500 = 34.8\%$. Oakmere lost value, so the total is only 77,500.

Key takeaway Between rebalancing dates, equal-weighted index weights drift toward the winners. New weight = new position value ÷ new total.

Reading 3: Benchmarking Returns. Notes: credguild.com/cfa/level-1/notes/quantitative-methods/benchmarking-returns/

Question 13 Answer: A

Reconstitution changes the index's membership. It is needed when a constituent ceases to exist (for example after a merger, a bankruptcy or delisting, or a bond maturing) or no longer meets the index criteria, and replacements that meet the criteria are added.

Why the other options are wrong

- **B.** Rebalancing resets the weights of existing constituents to their target weights. It does not swap one security for another.
- **C.** Redefinition is not one of the index maintenance steps. The index's objective and rules stay the same; only its membership changes.

Key takeaway Membership change = reconstitution; weight reset = rebalancing.

Reading 3: Benchmarking Returns. Notes: credguild.com/cfa/level-1/notes/quantitative-methods/benchmarking-returns/

Question 14 Answer: A

The fees are unequal, so each one is discounted to today on its own and the present values are added. With monthly compounding, the rate per period is 6%/12 = 0.5% and each year has 12 periods, so the fees are discounted over 12, 24 and 36 months.

$$PV = \frac{5{,}000}{1.005^{12}} + \frac{9{,}000}{1.005^{24}} + \frac{12{,}000}{1.005^{36}}$$

$$= 4{,}709.53 + 7{,}984.67 + 10{,}027.74 = \$22{,}721.94$$

Calculator (P/Y = C/Y = 1, END mode), first fee: N = 12; I/Y = 0.5; PMT = 0; FV = 5,000; CPT PV = −4,709.53. Then N = 24; FV = 9,000; CPT PV = −7,984.67, and N = 36; FV = 12,000; CPT PV = −10,027.74.

Why the other options are wrong

- **B.** $22,802 discounts at 6% with annual compounding (1.06, 1.06^2 and 1.06^3). Monthly compounding raises the effective annual rate to $1.005^{12} - 1 = 6.17\%$, so the present value is lower.

- **C.** $25,708 uses the monthly rate of 0.5% but discounts over only 1, 2 and 3 periods, counting years instead of months.

Key takeaway With m compounding periods a year, discount at r/m over $m\times$ years periods, and value unequal cash flows one at a time.

Reading 4: The Time Value of Money in Finance. Notes: credguild.com/cfa/level-1/notes/quantitative-methods/time-value-of-money/

Question 15 **Answer: C**

A fixed dividend paid forever is a perpetuity. Its value is the annual dividend divided by the investor's required rate of return.

$$V_p = \frac{D_p}{r_p} = \frac{2.60}{0.072} = \$36.11$$

Why the other options are wrong

- **A.** $18.72 multiplies the dividend by the required return (2.60×7.2) instead of dividing by it.
- **B.** $33.69 discounts the perpetuity value one extra year, $(2.60/0.072)/1.072$. The formula D_p/r_p already gives today's value when the first dividend is one year away.

Key takeaway Preferred stock (perpetual fixed dividend): value = dividend ÷ required return.

Reading 4: The Time Value of Money in Finance. Notes: credguild.com/cfa/level-1/notes/quantitative-methods/time-value-of-money/

Question 16 **Answer: A**

Price and yield to maturity are inversely related. The yield to maturity is the discount rate that equates the bond's cash flows with its price. A higher yield means the same fixed cash flows are discounted more heavily, so the price must have fallen.

Why the other options are wrong

- **B.** A price increase would go with a lower yield to maturity, not a higher one.
- **C.** A flat price would leave the yield to maturity almost unchanged (only the passage of one month would move it slightly). It could not produce a 0.5 percentage point rise.

Key takeaway Price and YTM are inversely related: when the yield rises, the price falls.

Reading 4: The Time Value of Money in Finance. Notes: credguild.com/cfa/level-1/notes/quantitative-methods/time-value-of-money/

Question 17 **Answer: A**

By the cash flow additivity principle, the PV of an uneven stream is the sum of the PVs of its individual cash flows. Each flow is discounted for its own number of years, and the year 4 outflow enters with a negative sign.

$$PV = \frac{3{,}000}{1.08} + \frac{5{,}000}{1.08^2} + \frac{0}{1.08^3} - \frac{1{,}500}{1.08^4}$$

$$= 2{,}777.78 + 4{,}286.69 + 0 - 1{,}102.54 = \$5{,}961.93$$

Calculator: [CF] [2ND] [CLR WORK]; CF0 = 0; C01 = 3,000, F01 = 1; C02 = 5,000, F02 = 1; C03 = 0, F03 = 1; C04 = −1,500, F04 = 1; [NPV] I = 8, [↓] [CPT] = 5,961.93. Inflows are entered as positive and the year 4 outflow as negative.

Why the other options are wrong

- **B.** $7,064 includes only the year 1 and year 2 inflows and leaves out the year 4 outflow.
- **C.** $8,167 adds the PV of the year 4 cash flow ($+1{,}102.54$) instead of subtracting it. It is an outflow.

Key takeaway PV of an uneven stream $= \sum_t CF_t/(1+r)^t$, keeping the signs of outflows.

Reading 4: The Time Value of Money in Finance. Notes: credguild.com/cfa/level-1/notes/quantitative-methods/time-value-of-money/

Question 18 **Answer: B**

Writing one call and buying the hedge ratio h of shares creates a portfolio worth the same whether the stock rises or falls. That riskless portfolio must earn the risk-free rate. The option value is the cost of the shares minus the present value of the riskless portfolio.

Stock at expiration: up $= \$50$, down $= \$32$. Call payoff: up $= \max(50-44, 0) = \$6$; down $= \$0$.

$$h = \frac{6-0}{50-32} = 0.3333$$

Portfolio at expiration: up $= 0.3333 \times 50 - 6 = 10.667$; down $= 0.3333 \times 32 - 0 = 10.667$.

$$\text{PV} = \frac{10.667}{1.04} = 10.256 \qquad c_0 = 0.3333 \times 40 - 10.256 = 13.333 - 10.256 = \$3.08$$

Why the other options are wrong

- **A.** $2.88 weights the up and down payoffs equally ($0.5 \times 6/1.04$). The binomial value does not depend on 50/50 (or any subjective) probabilities; it comes from the hedge ratio, the up and down prices and the risk-free rate.
- **C.** $3.20 is an undiscounted value: it equals 1.04×3.08, i.e. 0.5333×6, where $0.5333 = (1.04 - 0.80)/(1.25 - 0.80)$ is the risk-neutral probability of an up move. Omitting the division by $1 + R_f = 1.04$ overstates the option value.

Key takeaway Binomial model: $h = (c_u - c_d)/(S_u - S_d)$; $c_0 = hS_0 - \text{PV of the riskless portfolio at } R_f$.

Reading 4: The Time Value of Money in Finance. Notes: credguild.com/cfa/level-1/notes/quantitative-methods/time-value-of-money/

Question 19 **Answer: C**

Sorted, the returns are 3, 5, 10, 11, 11, 15, 17. The middle (fourth) value is 11%, and 11% is also the only value that appears twice, so the median and the mode are both 11%. The mean is lower, at about 10.29%.

Sorted: 3, 5, 10, 11, 11, 15, 17. The fourth value is the median, 11%.

Mode $= 11\%$ (appears twice).

$$\bar{X} = \frac{5 + 11 + 10 + 11 + 15 + 3 + 17}{7} = \frac{72}{7} = 10.29\%$$

Why the other options are wrong

- **A.** The mean (10.29%) is below the median (11%) because the low returns of 3% and 5% pull the average down.
- **B.** The mean (10.29%) is not equal to the mode (11%).

Key takeaway Compute all three measures explicitly; the mean is rarely exactly equal to an observed value.

Reading 5: Statistical Characteristics of Asset Returns. Notes: credguild.com/cfa/level-1/notes/quantitative-methods/skewness-and-kurtosis/

Question 20 **Answer: C**

Data are stationary when the mean and variance of the underlying distribution stay constant through time. When these characteristics shift, the series is nonstationary, and inferences about future outcomes drawn from past data become unreliable. For this reason analysts usually model percentage changes rather than trending price levels.

Why the other options are wrong

- **A.** The geometric and arithmetic means coincide only when every observation is identical; that has nothing to do with stationarity.
- **B.** The median always lies inside the interquartile range, and the mean usually does unless the data are extremely skewed. This says nothing about whether the distribution is stable over time.

Key takeaway Stationary = stable mean and variance over time. Price levels are usually nonstationary; returns (percentage changes) are more likely to be stationary.

Reading 5: Statistical Characteristics of Asset Returns. Notes: credguild.com/cfa/level-1/notes/quantitative-methods/skewness-and-kurtosis/

Question 21 **Answer: C**

A long right tail means the distribution is positively skewed. The large positive outliers pull the mean upward the most, the median less, and the mode (the peak) not at all, so mean > median > mode.

Why the other options are wrong

- **A.** This ordering describes a negatively skewed distribution with a long left tail.
- **B.** Equality of the three measures describes a symmetrical distribution, which has no long tail.

Key takeaway Positive (right) skew: mode < median < mean.

Reading 5: Statistical Characteristics of Asset Returns. Notes: credguild.com/cfa/level-1/notes/quantitative-methods/skewness-and-kurtosis/

Question 22 **Answer: B**

Correlation standardizes covariance by dividing it by the product of the two standard deviations.

$$\rho = \frac{\text{Cov}}{\sigma_N \sigma_Q} = \frac{21.6}{8 \times 6} = \frac{21.6}{48} = 0.45$$

Why the other options are wrong

- **A.** +0.34 divides the covariance by Norland's variance only $(21.6/64)$.

- **C.** +0.60 divides the covariance by Quarry Point's variance only ($21.6/36$).

Key takeaway $\rho = \text{Cov}/(\sigma_1\sigma_2)$; dividing by a single variance gives a slope-type ratio.

Reading 5: Statistical Characteristics of Asset Returns. Notes: credguild.com/cfa/level-1/notes/quantitative-methods/skewness-and-kurtosis/

Question 23 **Answer: C**

The coefficient of variation is the sample standard deviation divided by the mean return. Because the returns are a sample, the standard deviation uses $n - 1$ in the denominator.

Mean $= (19.0 + 7.5 - 9.6 + 4.9)/4 = 21.8/4 = 5.45\%$.

Year	Return	(Return – 5.45)^2
1	19.0	183.60
2	7.5	4.20
3	−9.6	226.50
4	4.9	0.30
	Sum	414.61

$$s = \sqrt{\frac{414.61}{4-1}} = \sqrt{138.20} = 11.76\% \qquad \frac{s}{\bar{X}} = \frac{11.76}{5.45} = 2.16$$

Why the other options are wrong

- **A.** 0.46 inverts the ratio: $5.45/11.76$.
- **B.** 1.87 uses the population standard deviation, $\sqrt{414.61/4} = 10.18\%$, giving $10.18/5.45$; the returns are to be treated as a sample.

Key takeaway Sample coefficient of variation: compute s with n – 1, then divide by the mean.

Reading 5: Statistical Characteristics of Asset Returns. Notes: credguild.com/cfa/level-1/notes/quantitative-methods/skewness-and-kurtosis/

Question 24 **Answer: C**

A probability function must satisfy two conditions: every probability lies between 0 and 1 inclusive, and the probabilities over all possible outcomes add up to exactly 1. Only $p(x) = (x + 1)/10$ meets both: it gives 0.1, 0.2, 0.3 and 0.4, each within [0, 1], summing to 1.0.

- Set with $p(3) = -0.05$: sum $= 0.40 + 0.35 + 0.30 - 0.05 = 1.00$, but $p(3) = -0.05 < 0$, so it fails condition 1.
- Constant $p(x) = 0.30$: each value is within [0, 1], but the sum is $4 \times 0.30 = 1.20 \neq 1$, so it fails condition 2.
- $p(x) = (x + 1)/10$: $p = 0.1, 0.2, 0.3, 0.4$; all in [0, 1] and $\sum p = 1.0$, so it is valid.

Why the other options are wrong

- **A.** The probabilities sum to one, but a negative probability is impossible; satisfying only the 'sum to one' condition is not enough.
- **B.** Each probability is between 0 and 1, but together they sum to 1.20. A probability function must exhaust exactly 100% of the probability; an equal-probability function over four outcomes would need 0.25 each.

Key takeaway Check both conditions every time: $0 \le p(x) \le 1$ for each x, and $\sum p(x) = 1$.

Reading 6: Statistical Distributions for Financial Asset Prices and Returns. Notes: credguild.com/cfa/level-1/notes/quantitative-methods/lognormal-distribution/

Question 25 **Answer: B**

The standard deviation of Fund Alder is the square root of the probability-weighted average squared deviation of Alder's scenario returns from Alder's expected return. Fund Birch's column is irrelevant to this question.

1. Expected return on Alder

$$E(R) = 0.20(19) + 0.25(15) + 0.35(9) + 0.20(1) = 3.8 + 3.75 + 3.15 + 0.2 = 10.9\%$$

2. Variance (percent units)

$$\sigma^2 = 0.20(8.1)^2 + 0.25(4.1)^2 + 0.35(-1.9)^2 + 0.20(-9.9)^2$$

$$= 13.122 + 4.2025 + 1.2635 + 19.602 = 38.19\ (\%^2)$$

(in decimals, 0.003819)

3. Standard deviation

$$\sigma = \sqrt{38.19} = 6.18\%$$

Why the other options are wrong

- **A.** 1.34% is the standard deviation of Fund Birch, computed from the wrong column (variance 1.7875 %²).
- **C.** 6.78% ignores the probabilities and treats the four scenarios as equally likely (mean 11%, variance 46 %²).

Key takeaway Read the column carefully in two-asset tables, and weight squared deviations by the scenario probabilities.

Reading 6: Statistical Distributions for Financial Asset Prices and Returns. Notes: credguild.com/cfa/level-1/notes/quantitative-methods/lognormal-distribution/

Question 26 **Answer: C**

The number of wins is a binomial random variable: there is a fixed number of independent trials (25 auctions), each with only two outcomes (win or lose) and the same probability of success ($p = 0.36$). Its mean is np and its variance is $np(1-p)$.

$$E(X) = np = 25 \times 0.36 = 9.0$$

$$\sigma^2(X) = np(1-p) = 25 \times 0.36 \times 0.64 = 5.76$$

(The standard deviation would be $\sqrt{5.76} = 2.40$.) As with any discrete count, the mean of 9.0 is the long-run average number of wins per week, not a guaranteed result.

Why the other options are wrong

- **A.** 16.0 uses the probability of *losing* an auction, 25×0.64, so it is the expected number of losses. The variance of 5.76 is right, because $np(1-p)$ is the same whichever outcome is called a success.
- **B.** The mean of 9.0 is right, but 2.40 is the *standard deviation*, $\sqrt{5.76}$, which is the square root of the variance.

Key takeaway Binomial: $E(X) = np$ and $\sigma^2 = np(1-p)$. Define "success" as the outcome being counted, and do not stop at the standard deviation when the variance is asked.

Reading 6: Statistical Distributions for Financial Asset Prices and Returns. Notes: credguild.com/cfa/level-1/notes/quantitative-methods/lognormal-distribution/

Question 27 **Answer: C**

The lognormal distribution is bounded below by zero, so it can never generate a negative price, which is why it is the usual choice for modeling asset price levels. Both the normal and the logistic distributions extend to minus infinity.

Why the other options are wrong

- **A.** A normal distribution is unbounded below, so with enough simulated paths some prices would turn negative; it is unsuitable for modeling price levels directly.
- **B.** A logistic distribution is also symmetric and unbounded, allowing negative as well as positive values (and its fat tails make extreme negative draws even more likely than under a normal).

Key takeaway When simulated prices must never be negative, model the price level as lognormal.

Reading 6: Statistical Distributions for Financial Asset Prices and Returns. Notes: credguild.com/cfa/level-1/notes/quantitative-methods/lognormal-distribution/

Question 28 **Answer: B**

This is a Bayesian update: the prior probability that a bond is BB-rated (0.40) is revised using the information that the bond defaulted. The posterior is the joint probability of 'BB and default' divided by the unconditional probability of default.

$$P(\text{BB and D}) = P(D \mid BB)P(BB) = 0.10 \times 0.40 = 0.04$$

$$P(\text{B and D}) = P(D \mid B)P(B) = 0.30 \times 0.60 = 0.18$$

$$P(D) = 0.04 + 0.18 = 0.22$$

$$P(BB \mid D) = \frac{0.04}{0.22} = 0.182$$

Why the other options are wrong

- **A.** 0.100 is $P(\text{default} \mid \text{BB})$, the likelihood. The question asks for the reverse conditional probability, the posterior $P(\text{BB} \mid \text{default})$.
- **C.** 0.333 is the ratio of the two default rates ($0.10/0.30$); it ignores the portfolio weights (priors) and the unconditional probability of default.

Key takeaway $P(A \mid B) \neq P(B \mid A)$. Build the joint probabilities, add them for the denominator, then divide.

Reading 6: Statistical Distributions for Financial Asset Prices and Returns. Notes: credguild.com/cfa/level-1/notes/quantitative-methods/lognormal-distribution/

Question 29 **Answer: C**

The analyst first divides the population into subgroups (strata) using a classification scheme (here, credit rating) and then draws a random sample within each stratum, pooling the results. That is stratified random sampling. Sampling each stratum in proportion to its weight ensures that the rating mix of the sample mirrors the population.

Why the other options are wrong

- **A.** In simple random sampling every bond in the universe would have the same chance of selection from a single, undivided list; here the population is first split into rating buckets and each bucket is sampled separately.
- **B.** Systematic sampling selects every k-th member of an ordered population list. The analyst makes random draws inside each rating bucket instead.

Key takeaway Dividing the population into groups first and then sampling randomly within every group is stratified random sampling.

Reading 7: Estimation and Hypothesis Testing. Notes: credguild.com/cfa/level-1/notes/quantitative-methods/null-hypothesis/

Question 30 **Answer: A**

Parametric value at risk assumes normally distributed returns. With a zero mean, the 5% VaR is the loss that sits 1.645 standard deviations below the mean, with the *whole* 5% in the left tail. It means there is a 5% probability of losing that amount or more on any given day.

One-tailed critical value for 5%: $z_{0.05} = 1.645$ (exact 1.6449; many texts round to 1.65).

$$\text{VaR}_{5\%} = z_{0.05} \times \sigma \times \text{portfolio value} = 1.645 \times 0.012 \times €40{,}000{,}000 = €789{,}600 \approx €0.79 \text{ million}$$

(With 1.65 the result is €792,000 — still closest to €0.79 million.)

Why the other options are wrong

- **B.** €0.94 million uses 1.96, the two-tailed 5% value (2.5% in each tail). VaR is one-tailed, so the full 5% belongs in a single tail (z = 1.645).
- **C.** €1.12 million uses 2.33, the one-tailed critical value for 1%, which gives the 1% VaR.

Key takeaway VaR puts the whole α in one tail: 1.28 for 10%, 1.645 for 5% and 2.33 for 1%. It is the minimum loss at that probability; larger losses remain possible.

Reading 7: Estimation and Hypothesis Testing. Notes: credguild.com/cfa/level-1/notes/quantitative-methods/null-hypothesis/

Question 31 **Answer: A**

Lowering the significance level lowers the probability of a Type I error. For a fixed sample size, the rejection region shrinks, so a false null is less likely to be rejected: the probability of a Type II error rises and the power of the test falls.

Why the other options are wrong

- **B.** Rejecting a true null is a Type I error, whose probability is the significance level; it falls from 5% to 1%.
- **C.** Failing to reject a false null is a Type II error; its probability *increases* when α is reduced with no change in sample size. A null is never 'accepted'; a test can only fail to reject it.

Key takeaway With n fixed, a lower α means a higher β and a lower power.

Reading 7: Estimation and Hypothesis Testing. Notes: credguild.com/cfa/level-1/notes/quantitative-methods/null-hypothesis/

Question 32 **Answer: C**

The p-value is the smallest significance level at which the null hypothesis can be rejected. The null is rejected whenever the chosen α exceeds the p-value, so here it is rejected at 5% or at 2.5% but not at 1%.

Why the other options are wrong

- **A.** At 1%, the p-value of 0.021 is above α = 0.01, so the null is not rejected.
- **B.** The p-value is computed assuming the null is true: it is the probability, under H_0, of a test statistic at least as extreme as the one observed. It does not measure the probability that H_0 itself is true.

Key takeaway Reject H_0 when the p-value is below α. A p-value of 0.021 rejects at 5% but not at 1%.

Reading 7: Estimation and Hypothesis Testing. Notes: credguild.com/cfa/level-1/notes/quantitative-methods/null-hypothesis/

Question 33 **Answer: A**

Under independence, the expected count for a cell is (row total × column total) / total number of observations. For energy issuers in technical default, use the Energy row total (125) and the Technical default column total (33).

$$E_{i,j} = \frac{\text{total for row } i \times \text{total for column } j}{\text{total number of observations}} = \frac{125 \times 33}{405} = \frac{4{,}125}{405} = 10.2$$

Why the other options are wrong

- **B.** About 14 (13.6) uses the Actual default column total (44) instead of the Technical default column total: $125 \times 44/405 = 13.6$.
- **C.** 16 is the *observed* number of energy issuers in technical default; the question asks for the count expected under independence.

Key takeaway Expected count = row total × column total / grand total.

Reading 7: Estimation and Hypothesis Testing. Notes: credguild.com/cfa/level-1/notes/quantitative-methods/null-hypothesis/

Question 34 **Answer: C**

Without rebalancing, the weights drift with market values (portfolio drift). Each period's portfolio return must use the weights at the start of that period, so the Year 2 return is computed with the weights at the end of Year 1, not the original 60/40 split.

1. Values at the end of Year 1

Equity fund: $\$60{,}000 \times 1.20 = \$72{,}000$; bond fund: $\$40{,}000 \times 1.02 = \$40{,}800$; total $= \$112{,}800$.

2. Weights at the start of Year 2

$$w_{\text{equity}} = \frac{72{,}000}{112{,}800} = 0.6383, \qquad w_{\text{bond}} = \frac{40{,}800}{112{,}800} = 0.3617$$

3. Year 2 portfolio return

$$R_{P,2} = 0.6383(-10\%) + 0.3617(6\%) = -6.383\% + 2.170\% = -4.21\%$$

Check: end values $\$64{,}800 + \$43{,}248 = \$108{,}048$; $108{,}048/112{,}800 - 1 = -4.21\%$.

Why the other options are wrong

- **A.** −2.00% is the equal-weighted average of the two Year 2 returns, $(-10\% + 6\%)/2$; it ignores both the original and the drifted weights.
- **B.** −3.60% uses the original weights, $0.60(-10\%) + 0.40(6\%)$. That would be right only if the portfolio had been rebalanced back to 60/40 at the end of Year 1.

Key takeaway No rebalancing means the weights drift: recompute each weight from start-of-period market values before weighting the period's returns.

Reading 8: The Return and Risk of a Financial Portfolio. Notes: credguild.com/cfa/level-1/notes/quantitative-methods/portfolio-standard-deviation/

Question 35 **Answer: C**

For an equally weighted portfolio of many assets, the individual variances matter little and portfolio variance is approximately the average correlation times the average variance. The standard deviation is the square root of that variance.

$$\sigma_P^2 \approx \bar{\rho}\,\bar{\sigma}^2 = 0.30 \times 0.09 = 0.027$$

$$\sigma_P \approx \sqrt{0.027} = 0.164 = 16.4\%$$

The approximation ignores the finite-N term. If every stock had the same variance of 0.09, the exact equal-weight formula would add $(1 - \bar{\rho})\sigma^2/N = 0.70(0.09)/50 = 0.00126$, giving $\sigma_P^2 = 0.02826$ and $\sigma_P = 16.8\%$, still closest to 16.4%. With unequal variances, the exact result depends on the average covariance, which the given averages do not pin down, so the question asks for the approximation. The average single stock has a standard deviation of $\sqrt{0.09} = 30\%$; diversification cuts this to about 16%, and the remainder is systematic risk.

Why the other options are wrong

- **A.** 2.7% is the approximate portfolio *variance* (0.027) quoted as if it were the standard deviation.
- **B.** 9.0% multiplies the average correlation by the average standard deviation ($0.30 \times 30\%$). The approximation multiplies the correlation by the average *variance*, and the square root is taken afterward.

Key takeaway For a large portfolio, $\sigma_P^2 \approx \bar{\rho}\bar{\sigma}^2$. Diversification removes unsystematic risk, but the average covariance (systematic risk) remains.

Reading 8: The Return and Risk of a Financial Portfolio. Notes: credguild.com/cfa/level-1/notes/quantitative-methods/portfolio-standard-deviation/

Question 36 **Answer: B**

Utility rewards expected return and penalizes variance in proportion to the coefficient of risk aversion. Computing the utility of each fund (with returns and standard deviations in decimals and the standard deviation squared) shows that the balanced fund offers the best trade-off for this client.

$$U = E(r) - \tfrac{1}{2}(3)\sigma^2 = E(r) - 1.5\sigma^2$$

Fund	$E(r)$	σ^2	U
Northgate Growth	0.11	0.0400	$0.11 - 0.0600 = 0.0500$
Westbury Balanced	0.08	0.0144	$0.08 - 0.0216 = 0.0584$
Eastholm Income	0.06	0.0025	$0.06 - 0.00375 = 0.05625$

Westbury Balanced has the highest utility (5.84%).

Why the other options are wrong

- **A.** Northgate Growth has the highest expected return, but its large variance creates the biggest utility penalty ($1.5 \times 0.04 = 0.06$), leaving a utility of only 5.00%.
- **C.** Eastholm Income has the lowest risk and is the choice that results if the standard deviation is used instead of the variance in the penalty term. With the variance, its utility (5.625%) is slightly below that of the balanced fund.

Key takeaway Use σ^2 (in decimals) and the $\frac{1}{2}$ in the utility function; neither the highest return nor the lowest risk is automatically the best choice.

Reading 8: The Return and Risk of a Financial Portfolio. Notes: credguild.com/cfa/level-1/notes/quantitative-methods/portfolio-standard-deviation/

Question 37 **Answer: A**

Under the CAPM, an asset's expected return equals the risk-free rate plus beta times the market risk premium. The market risk premium is given directly, so it is multiplied by beta without subtracting the risk-free rate again.

$$E(R_i) = R_f + \beta_i\,[E(R_M) - R_f] = 3\% + 0.8(6\%) = 3\% + 4.8\% = 7.8\%$$

Why the other options are wrong

- **B.** 5.4% treats 6% as the market *return* and subtracts the risk-free rate again: $3\% + 0.8(6\% - 3\%)$. The 6% is already the market risk premium.
- **C.** 4.8% is only the asset's risk premium, $0.8 \times 6\%$; the risk-free rate must be added.

Key takeaway Check whether the question gives the market return or the market risk premium before plugging into the CAPM.

Reading 8: The Return and Risk of a Financial Portfolio. Notes: credguild.com/cfa/level-1/notes/quantitative-methods/portfolio-standard-deviation/

Question 38 **Answer: B**

Historical simulation is nonparametric: it uses actual past changes, so the scenarios automatically carry the fat tails, skewness and volatility clustering present in the data. A normal-distribution model tends to understate extreme outcomes.

Why the other options are wrong

- **A.** Reliance on the past is the main weakness of historical simulation; after a regime change, past data may no longer represent the future.
- **C.** Historical simulation can only reproduce outcomes that actually occurred in the lookback period; simulating conditions never seen before is an advantage of Monte Carlo simulation.

Key takeaway Historical simulation is nonparametric, captures fat tails and volatility clustering and is easy to explain; its limit is that it can only replay what actually happened.

Reading 9: Simulation of Financial Asset Prices and Returns. Notes: credguild.com/cfa/level-1/notes/quantitative-methods/simulation-of-financial-asset-prices-and-returns/

Question 39 **Answer: A**

Bootstrapping samples with replacement: after each draw the observation is returned to the dataset. An eight-quarter scenario needs eight draws, so the same observation could in principle be pulled on every one of them, although with a 1/40 chance per draw this is extremely unlikely.

Each scenario consists of 8 draws of a random integer from 1 to 40, each mapped to one historical quarterly return. The probability that a given observation is chosen on any single draw is $1/40$, and the maximum number of appearances in one scenario equals the number of draws, 8.

Why the other options are wrong

- **B.** "Only once" describes sampling *without* replacement. Bootstrap resampling replaces each observation, so repeats are possible.
- **C.** Forty is the size of the dataset; a scenario of eight quarters contains only eight draws.

Key takeaway Sampling with replacement: repeats are possible, capped by the number of draws in the scenario.

Reading 9: Simulation of Financial Asset Prices and Returns. Notes: credguild.com/cfa/level-1/notes/quantitative-methods/simulation-of-financial-asset-prices-and-returns/

Question 40 **Answer: C**

Monte Carlo scenarios are generated from distributions chosen by the analyst, so the method can simulate hypothetical or extreme conditions that never appeared in the historical record. Historical simulation and bootstrapping can only reuse what actually happened.

Why the other options are wrong

- **A.** Monte Carlo usually has heavy data requirements, because volatilities, correlations and other parameters must be estimated.
- **B.** Monte Carlo models are more complex and harder to communicate than methods that replay or resample actual history.

Key takeaway Monte Carlo is forward-looking: it can model scenarios with no historical precedent.

Reading 9: Simulation of Financial Asset Prices and Returns. Notes: credguild.com/cfa/level-1/notes/quantitative-methods/simulation-of-financial-asset-prices-and-returns/

Question 41 **Answer: B**

The dependent variable is the one whose variation the model explains, here the yield spread. The interest coverage ratio does the explaining, so it is the independent (explanatory) variable. Observations of many issuers at one date are cross-sectional data, which a simple linear regression can use as readily as time-series data.

Why the other options are wrong

- **A.** An explanatory variable is the independent variable. Making the coverage ratio the dependent variable reverses the roles set by the analyst's question.
- **C.** Data on many subjects at one point in time are cross-sectional data, and a regression can be run on them. Time-series data are not required.

Key takeaway Dependent variable (Y): explained, endogenous, predicted. Independent variable (X): explanatory, exogenous, predicting. The research question decides which is which.

Reading 10: Applications of Simple Linear Regression in Finance. Notes: credguild.com/cfa/level-1/notes/quantitative-methods/least-squares-regression/

Question 42 **Answer: A**

The residuals fan out as floor area increases: their spread (variance) grows with the independent variable. A residual variance that is not constant across observations is heteroskedasticity, a violation of the homoskedasticity assumption.

Why the other options are wrong

- **B.** The plot shows residuals centered on zero with a changing spread; nothing in it points specifically to a nonnormal shape, and normality is judged from the shape of the residuals' distribution. How their spread changes with X is a separate question.
- **C.** Non-independence (autocorrelation) shows up as residuals that are correlated with one another, such as a recurring seasonal pattern over time. A widening spread with X is a variance problem.

Key takeaway Residual spread widening with X = heteroskedasticity (non-constant residual variance).

Reading 10: Applications of Simple Linear Regression in Finance. Notes: credguild.com/cfa/level-1/notes/quantitative-methods/least-squares-regression/

Question 43 **Answer: A**

A prediction interval is the predicted value plus or minus the critical t-value times the standard error of the forecast. A two-sided 90% interval leaves 5% in each tail, so with n − 2 = 30 degrees of freedom the critical value is 1.697.

- Predicted return: $\hat{Y} = 0.0040 + 0.6500(-0.015) = 0.0040 - 0.00975 = -0.00575$
- Half-width: $t_c \times s_f = 1.697 \times 0.028 = 0.0475$
- Interval: -0.00575 ± 0.0475, that is, -0.0533 to 0.0418

Calculator: `0.65` `[×]` `0.015` `[=]` gives 0.00975; `1.697` `[×]` `0.028` `[=]` gives 0.047516.

Why the other options are wrong

- **B.** This interval uses 1.310, the critical value with 10% in one tail. A two-sided 90% interval splits the 10% between the two tails, so each tail holds 5%.

- **C.** This interval is centered on $0.0040 + 0.00975 = 0.01375$, which drops the minus sign of the forecast change in the index.

Key takeaway Prediction interval $= \hat{Y} \pm t_c s_f$, with n − 2 degrees of freedom and α/2 in each tail. Keep the sign of the forecast X when computing $\hat{Y}$.

Reading 10: Applications of Simple Linear Regression in Finance. Notes: credguild.com/cfa/level-1/notes/quantitative-methods/least-squares-regression/

Question 44 **Answer: B**

In the regression $(R_i - R_f) = b_0 + b_1(R_M - R_f) + \varepsilon$, the slope coefficient is the estimate of the asset's beta. The slope is 0.72, so beta lies between 0 and 1: the stock's excess returns tend to move less than one-for-one with the market risk premium.

$$(R_i - R_f) = -0.15 + 0.72\,(R_M - R_f) \;\Rightarrow\; \hat{\beta} = \hat{b}_1 = 0.72$$

Why the other options are wrong

- **A.** The negative number is the intercept, which is not beta. Beta is the slope, 0.72.
- **C.** A beta above 1 would require a slope above 1; the estimated slope is 0.72.

Key takeaway Beta = slope of the excess-return regression; the intercept is irrelevant to beta.

Reading 10: Applications of Simple Linear Regression in Finance. Notes: credguild.com/cfa/level-1/notes/quantitative-methods/least-squares-regression/

Question 45 **Answer: C**

Fintech refers to the meeting of the finance and technology worlds. In investment management the developments of most interest are those that aid quantitative analysis, such as big data tools and machine learning. The term is also used more broadly for technology applied to financial services and for the firms that build it.

Why the other options are wrong

- **A.** Consumer payment and banking apps are one use of fintech. Limiting the term to them leaves out the investment tools, such as machine learning and big data processing, that matter most to analysts.
- **B.** Financial data science is the quantitative and qualitative analysis of financial information to gain insight into a financial question. Fintech is the technology that supports such work and other financial services, so the two terms are related but different.

Key takeaway Fintech is where finance meets technology; financial data science is the analysis that some of that technology makes possible.

Reading 11: Introduction to Financial Data Science. Notes: credguild.com/cfa/level-1/notes/quantitative-methods/machine-learning-in-finance/

Question 46 **Answer: A**

Unstructured data lack a predefined, tabular organization; examples include social media content, voice recordings, pictures and sensor output. Because they are hard for a person to handle efficiently, analyzing them usually requires ML algorithms, AI or specialized code.

Why the other options are wrong

- **B.** Structured data are held in tables of rows and columns in a database (e.g., balance sheet data, market price records). Audio, images and social media posts are not in that form.
- **C.** Semi-structured data cannot be stored in tables but are tagged so they can be stored in an organized way, such as HTML code. The examples given have no such tagging structure.

Key takeaway Social media, voice, pictures, video and sensor data are unstructured.

Reading 11: Introduction to Financial Data Science. Notes: credguild.com/cfa/level-1/notes/quantitative-methods/machine-learning-in-finance/

Question 47 **Answer: B**

Curation is the processing step that assures data quality: errors are corrected and bad or missing observations are adjusted for before analysis. The other two statements attach the description of one processing step to the name of a different step.

Why the other options are wrong

- **A.** Archiving data and accessing them later describes storage. Search means querying data that are already stored to locate the information needed.
- **C.** Moving data from their source or a storage medium to the analytical tool is transfer. Capture is the collection of data and their conversion into a usable form in preparation for analysis.

Key takeaway Learn the five processing methods as pairs that are easy to mix up: capture vs. transfer, and storage vs. search. Curation is always about data quality.

Reading 11: Introduction to Financial Data Science. Notes: credguild.com/cfa/level-1/notes/quantitative-methods/machine-learning-in-finance/

Question 48 **Answer: B**

Supervised learning works with labeled data: every input record comes with its known output, the machine learns how the outputs relate to the inputs, and the fitted model is then used on new data to forecast outcomes. Here the ratios are the inputs, the default outcome is the labeled output, and the model is applied to new applicants, so it is supervised learning.

Why the other options are wrong

- **A.** Unsupervised learning receives unlabeled inputs only, with no target outputs; the machine uncovers structure and patterns on its own (e.g., customer segmentation, anomaly detection). The lender does supply outputs (default or not).
- **C.** Reinforcement learning models learn by trial and error, improving through feedback in the form of rewards or penalties. No reward system is described here.

Key takeaway Labeled inputs and outputs: supervised. No outputs: unsupervised. Rewards and penalties: reinforcement.

Reading 11: Introduction to Financial Data Science. Notes: credguild.com/cfa/level-1/notes/quantitative-methods/machine-learning-in-finance/

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Economics

Questions 49–83 · 8 readings

12 Oligopoly

Question 49

Hartwell Joinery employs 35 carpenters and makes furniture in a factory it leases on a five-year contract, using machinery it owns. Over which inputs does the firm have a choice in the long run?

A The carpenters only.

B The factory and the machinery only.

C The carpenters, the factory and the machinery.

Question 50

Lindqvist Ferries operates in a market in which it faces a downward-sloping demand curve. For the coming year it forecasts total revenue of $2.10 million, total variable costs of $1.65 million and total fixed costs of $0.72 million. If these conditions are expected to persist, the firm should *most appropriately*:

A shut down in the short run, because total revenue is less than total cost.

B continue operating in the short run but exit the market in the long run.

C continue operating in both the short run and the long run, because total revenue exceeds total variable cost.

Question 51

An industry study reports the following:

- many sellers act independently of one another;
- product features differ from firm to firm;
- entry into the industry is easy;
- each firm's demand curve slopes downward but is quite elastic.

The industry is best characterized as:

A an oligopoly.

B monopolistic competition.

C a monopoly.

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Question 52

Norden Cement and Solvik Cement are the only two suppliers in a regional market. Each firm independently chooses a high or a low price, and the resulting annual profits are shown below.

Annual profits (in $ thousands) of Norden Cement and Solvik Cement under each pricing strategy

	Solvik: high price	Solvik: low price
Norden: high price	Norden 800, Solvik 700	Norden 300, Solvik 900
Norden: low price	Norden 950, Solvik 250	Norden 500, Solvik 450

Based on the concept of a Nash equilibrium, the *most likely* outcome is that:

A both firms charge a high price.

B both firms charge a low price.

C Norden charges a high price and Solvik charges a low price.

Question 53

An analyst has annual sales for the producers of industrial fasteners in a region:

Annual sales of industrial fastener producers (€ millions)

Firm	Sales (€ millions)
Arlo	240
Brisk	180
Calder	150
Dunmark	120
Eske	60
All other firms	50

The industry's three-firm concentration ratio and three-firm Herfindahl-Hirschman Index (HHI) are *closest* to:

A 71.25% and 0.1758.

B 71.25% and 0.1983.

C 76.00% and 0.2000.

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13 Business Cycle

Question 54

An economy that is in the contraction phase of the business cycle would *most typically* display:

A a falling unemployment rate.

B real GDP growth above its sustainable long-term rate.

C decreasing inflationary pressure.

Question 55

A bank economist makes three claims about the lending (credit) cycle and its link to the business cycle. Which claim is *least accurate*?

A Easy credit conditions during an expansion can contribute to asset price bubbles.

B Credit cycles tend to amplify business cycles.

C On average, credit cycles have been shorter than business cycles.

Question 56

Orders at Brightwater Castings, a maker of pump housings, have started to fall as the economy begins to contract. Management is not yet convinced the downturn will last and wants to keep its workforce and its productive capacity intact for now. Its *first* adjustment is *most likely* to be:

A laying off part of its workforce.

B postponing scheduled maintenance on its machinery.

C cutting back the overtime hours its employees work.

Question 57

An analyst wants a US data series that tends to change direction *before* the overall economy does. Which of the following should she choose?

A The index of consumer expectations.

B The average duration of unemployment.

C The index of industrial production.

14 Fiscal Policy

Question 58

To support a slowing economy, the finance ministry of Norvessa announces a cut in personal income tax rates together with a larger budget for road and rail projects. These measures are *best* described as:

A fiscal policy.

B monetary policy.

C a combination of fiscal and monetary policy.

Question 59

The governments of Tarsia and Morvenna both keep their tax rates unchanged and both run a balanced primary budget, meaning that tax revenue exactly covers all government spending other than interest on the debt. Tarsia's government debt equals 85% of GDP, the real interest rate on that debt is 3.1%, and Tarsia's real GDP grows by 1.3% a year. Morvenna's government debt equals 50% of GDP, the real interest rate on that debt is 0.9%, and Morvenna's real GDP grows by 2.7% a year. If these conditions persist, the ratio of government debt to GDP will *most likely*:

A rise in Tarsia and fall in Morvenna.

B rise in both Tarsia and Morvenna.

C fall in both Tarsia and Morvenna.

Question 60

Inflation in Brennholt is running well above target. Which of the following is an appropriate *discretionary fiscal policy* response?

A Scaling back government spending on large public construction projects.

B Raising the central bank's target for the overnight interbank rate.

C Reducing the money supply.

Question 61

The government of Kestrel Isles increases its spending by $60 million. Households have a marginal propensity to consume of 90%, and the tax rate is 30%. The potential increase in aggregate demand is *closest* to:

A $600 million.

B $162 million.

C $82 million.

Question 62

Over the past year, new tax and spending decisions (not the business cycle) have widened the budget deficit of Estavia's government and shrunk the budget surplus of Marquessa's government. How would the fiscal policies of the two countries *best* be described?

A Both are expansionary.

B Both are contractionary.

C One is expansionary and the other is contractionary.

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15 Quantitative Easing

Question 63

Rumors about loan losses lead depositors at several banks in Harwick to start withdrawing their money. Harwick's central bank announces that it will provide whatever funds are needed to any sound bank facing a cash shortage, and the withdrawals soon stop. This announcement reflects the central bank's role as:

A lender of last resort.

B holder of gold and foreign exchange reserves.

C sole supplier of currency.

Question 64

Suppose the Federal Reserve carries out open market sales of Treasury securities. What happens to bank reserves and to the federal funds rate?

A Reserves decrease, banks can lend less, and the federal funds rate rises.

B Reserves decrease, banks can lend less, and the federal funds rate falls.

C Reserves increase, banks can lend more, and the federal funds rate falls.

Question 65

In Taviston, unions and employers routinely write the central bank's announced inflation target into multi-year wage agreements, and lenders price loans on the assumption that inflation will stay close to that target. This behavior indicates that Taviston's central bank has:

A credibility.

B transparency.

C target independence.

Question 66

Quellan's central bank has set its policy rate at 4.0% and aims for inflation of 2.4%. Economists expect real GDP to expand at a trend pace of 1.6% a year. How is Quellan's monetary policy *most likely* classified?

A Neutral.

B Expansionary.

C Contractionary.

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Question 67

Growth in Tarnovia has stalled. Its government and central bank want both public-sector spending and private-sector consumption and investment to expand. Which policy mix fits this goal, and what is its *most likely* effect on interest rates?

A Expansionary fiscal and contractionary monetary policy; interest rates rise.

B Contractionary fiscal and expansionary monetary policy; interest rates fall.

C Expansionary fiscal and expansionary monetary policy; interest rates usually fall.

16 Introduction to Geopolitics

Question 68

During the same year, the government of Aldmere (1) signs an agreement with neighboring states to harmonize product standards and lower tariffs among them, and (2) bans all exports of rare-earth minerals mined within its borders. From a geopolitical perspective, which of the two actions counts as cooperative?

A Neither of the actions.

B Both of the actions.

C Only one of the actions.

Question 69

An analyst compares the goals listed in Article I of the International Monetary Fund's (IMF's) Articles of Agreement with the stated mission of the World Bank and the role of the World Trade Organization (WTO). Which of her conclusions is *most accurate*?

A Of the three, only the World Bank has fighting poverty as its explicit mission.

B Of the three, only the WTO works to expand international trade.

C Of the three, only the IMF lends financial resources to member countries.

Question 70

A portfolio manager is classifying the geopolitical risks that could affect her emerging market holdings. Which of the following is *best* described as an event risk?

A A gradual shift in migration patterns that is expected to play out over several decades.

B A rebellion that breaks out suddenly, with no warning signs identified in advance.

C A referendum on leaving a customs union, scheduled for a date set a year ahead.

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Question 71

Which of the following statements about the effect of geopolitical risk on investments is *most accurate*?

A Scenario analysis is generally not an appropriate technique for estimating how geopolitical risks could affect a portfolio.

B A given geopolitical risk may have a larger effect on investment values in a recession than in an expansion.

C Geopolitical risks affect entire countries or regions, rather than individual companies or industries.

17 Comparative Advantage

Question 72

Regarding the gains and losses that international trade creates, which of the following statements is *most accurate*?

A Every group in each of the trading countries is made better off by increased trade.

B The costs of trade fall mainly on firms and workers in domestic industries that compete with imports.

C With respect to domestic employment, the costs of trade outweigh its benefits.

Question 73

Which of the following statements correctly describes how a tariff differs from a quota?

A A tariff is set by international organizations, whereas a quota is set by an individual country.

B A tariff is imposed by one government, whereas a quota is an international agreement capping the total volume of world trade.

C A tariff is a tax on imported goods, whereas a quota is a limit on the amount of imports allowed over some period.

Question 74

Tessaly, a small country, is choosing among three measures that would each cut its imports of washing machines by the same quantity: a tariff, an import quota whose licenses the government auctions for their full value, or a voluntary export restraint agreed with the main exporting country. Which measure would cause the greatest loss of national welfare for Tessaly?

A The voluntary export restraint.

B The tariff.

C The import quota with auctioned licenses.

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Question 75

Which sequence ranks regional trading agreements correctly, starting with the lowest and ending with the highest level of economic integration?

A Common market, customs union, economic union.

B Free trade area, customs union, common market.

C Customs union, free trade area, monetary union.

18 Capital Flows and the FX Market

Question 76

Buy-side participants in the foreign exchange market include real money accounts and leveraged accounts. Compared with a real money account, an investment account classified as a leveraged account is *most likely* distinguished by its:

A active use of leverage, typically through derivatives.

B role as a dealer quoting two-way prices to other participants.

C restriction to long-term, unleveraged holdings of foreign-currency assets.

Question 77

Tomas Riedl, an economist in Lorvania, tracks the real exchange rate of the Lorvanian crown against its main trading partner's currency, quoted as the number of crowns needed to buy one unit of the partner's currency (domestic/foreign). Holding all other factors constant, which of the following would cause this real exchange rate to fall?

A A rise in the foreign price level.

B A rise in the nominal exchange rate (domestic/foreign).

C A rise in the domestic price level.

Question 78

Under Pelagia's monetary law, the monetary authority may issue Pelagian dinars only when each new dinar is fully matched by euro reserves, and it must exchange dinars for euros on demand at a fixed rate. The authority earns interest on the euro reserves it holds. The regime Pelagia operates is best classified as:

A a currency board arrangement.

B formal dollarization.

C a conventional fixed peg arrangement.

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Question 79

Which of the following is *least likely* to be cited by a government as an objective of restricting capital flows?

A Maintaining a fixed exchange rate.

B Protecting strategic industries from foreign ownership.

C Keeping domestic interest rates high.

19 Exchange Rate Calculations

Question 80

Using the quotes EUR/USD 0.9240 and NZD/EUR 1.7960, an analyst calculates the spot cross rate between the US dollar and the New Zealand dollar. Stated as USD/NZD, it is *closest* to:

A 0.51448.

B 0.60259.

C 1.65950.

Question 81

The spot exchange rate is 1.3450 CAD/USD. The 180-day money market rate is 4.20% for the Canadian dollar and 5.40% for the US dollar, both quoted as annualized rates on a 360-day basis. The 180-day no-arbitrage forward CAD/USD exchange rate is *closest* to:

A 1.3297.

B 1.3371.

C 1.3529.

Question 82

The central bank of Selvia unexpectedly raises its policy rate, and Selvian money market rates move well above euro-area rates. Two analysts comment on the outlook for the Selvian lev (SLV) against the euro:

- Ruiz: "The higher-yielding currency always trades at a forward discount, so the rate increase tells us the SLV will now weaken against the euro."
- Okoye: "Higher Selvian rates should draw in foreign capital, which tends to push the SLV up against the euro."

Which evaluation of the two comments is *most accurate*?

A Ruiz is right; the forward discount is a reliable forecast of the future spot rate.

B Neither is right; a change in the policy rate leaves the spot rate unaffected.

C Okoye is right; parity sets today's forward rate but does not forecast spot rates.

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Question 83

A dealer's SGD/AUD quotes are 0.8870 for spot settlement and 0.8795 for delivery in 12 months. Measured against spot, the forward quote is a:

A premium of 75 points, and the SGD is at a forward discount to the AUD.

B discount of 75 points, and the SGD is at a forward premium to the AUD.

C discount of 7.5 points, and the SGD is at a forward discount to the AUD.

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ECONOMICS

Answers and explanations

Answer key: 49. C · 50. B · 51. B · 52. B · 53. A · 54. C · 55. C · 56. C · 57. A · 58. A · 59. A · 60. A · 61. B · 62. A · 63. A · 64. A · 65. A · 66. A · 67. C · 68. C · 69. A · 70. C · 71. B · 72. B · 73. C · 74. A · 75. B · 76. A · 77. C · 78. A · 79. C · 80. B · 81. B · 82. C · 83. B

Question 49 **Answer: C**

The long run is the period over which every factor of production is variable. The firm can let the lease expire or sign a new one, sell or buy machinery and change its workforce, so all three inputs can be changed. In the short run the factory and machinery are fixed and only labor (and materials) can vary.

Why the other options are wrong

- **A.** Labor alone describes the short run, when the plant and equipment are fixed. In the long run the plant and equipment can be changed as well.
- **B.** This reverses the usual assumption: labor is variable even in the short run, so it is certainly variable in the long run.

Key takeaway In the long run all costs are variable; the short run is defined by at least one fixed input, usually capital.

Reading 12: The Firm and Market Structures. Notes: credguild.com/cfa/level-1/notes/economics/oligopoly/

Question 50 **Answer: B**

For a price searcher, breakeven and shutdown are judged with totals because price does not equal marginal revenue. Total revenue exceeds total variable cost, so operating covers all variable cost and part of fixed cost and loses less than shutting down; but total revenue is below total cost, so the firm cannot survive in the long run when all costs are avoidable.

Total cost: $TC = TVC + TFC = 1.65 + 0.72 = \$2.37$ million.

- Loss if it operates: $TR - TC = 2.10 - 2.37 = -\$0.27$ million.
- Loss if it shuts down (fixed costs still due): $-\$0.72$ million.

Since $TVC(1.65) < TR(2.10) < TC(2.37)$: operate in the short run (a loss of $0.27 million instead of $0.72 million), but exit in the long run because TR does not cover TC.

Why the other options are wrong

- **A.** Short-run shutdown is warranted only when $TR < TVC$. Here TR exceeds TVC by $0.45 million, so closing now would raise the loss from $0.27 million to the full $0.72 million of fixed costs.
- **C.** Covering variable costs is enough only for the short run. In the long run the firm must cover total cost; with TR below TC by $0.27 million it should exit if conditions persist.

Key takeaway If $TR < TVC$, shut down now; if $TVC < TR < TC$, operate now and exit later; if $TR \geq TC$, stay.

Reading 12: The Firm and Market Structures. Notes: credguild.com/cfa/level-1/notes/economics/oligopoly/

Question 51 **Answer: B**

Many independent sellers, differentiated products, low barriers to entry and downward-sloping, highly elastic firm demand are the conditions of monopolistic competition.

Why the other options are wrong

- **A.** An oligopoly has a small number of interdependent sellers and high barriers to entry.
- **C.** A monopoly has a single seller protected by high barriers to entry.

Key takeaway Checklist for monopolistic competition: many sellers, differentiation, easy entry, elastic downward-sloping demand.

Reading 12: The Firm and Market Structures. Notes: credguild.com/cfa/level-1/notes/economics/oligopoly/

Question 52 **Answer: B**

A Nash equilibrium is a combination of choices from which no firm can raise its profit by changing its own choice alone. Charging a low price is each firm's best response whatever the other does, so both choose a low price and neither wants to deviate, even though both would earn more if they could collude on high prices.

Norden's best response: if Solvik is high, low (950) beats high (800); if Solvik is low, low (500) beats high (300), so Norden prices low either way.

Solvik's best response: if Norden is high, low (900) beats high (700); if Norden is low, low (450) beats high (250), so Solvik prices low either way.

Nash equilibrium: (low, low) with profits 500 and 450. Joint profit there is 950 versus 1,500 at (high, high), the collusive outcome.

Why the other options are wrong

- **A.** Both charging high gives the largest joint profit (1,500), but it is not stable: either firm could raise its own profit by switching to a low price (Norden from 800 to 950, Solvik from 700 to 900). Only collusion could sustain it.
- **C.** If Solvik prices low, Norden earns only 300 with a high price versus 500 with a low price, so Norden would switch; this combination is not an equilibrium.

Key takeaway Check each cell: if either firm can gain by changing only its own choice, the cell is not a Nash equilibrium. The Nash equilibrium need not maximize joint profit.

Reading 12: The Firm and Market Structures. Notes: credguild.com/cfa/level-1/notes/economics/oligopoly/

Question 53 **Answer: A**

Both measures use market shares, so each firm's sales must first be divided by total industry sales, including the sales of all the smaller firms. The three-firm concentration ratio adds the shares of the three largest firms; the three-firm HHI adds the squares of those shares.

Total industry sales $= 240 + 180 + 150 + 120 + 60 + 50 = 800$.

Shares of the three largest firms: $240/800 = 30\%$, $180/800 = 22.5\%$, $150/800 = 18.75\%$.

$$\text{3-firm ratio} = 30 + 22.5 + 18.75 = 71.25\%$$

$$\text{HHI} = 0.30^2 + 0.225^2 + 0.1875^2 = 0.0900 + 0.0506 + 0.0352 = 0.1758$$

Why the other options are wrong

- **B.** 0.1983 also squares Dunmark's 15% share ($0.1758 + 0.0225$), which is a four-firm HHI. The question asks for the three largest firms only.
- **C.** These values leave the other firms' sales of 50 out of the total, so shares are computed on 750: $32\% + 24\% + 20\% = 76\%$ and $0.1024 + 0.0576 + 0.0400 = 0.2000$.

Key takeaway Convert sales to shares using total industry sales, then use the same N largest firms for both measures.

Reading 12: The Firm and Market Structures. Notes: credguild.com/cfa/level-1/notes/economics/oligopoly/

Question 54 **Answer: C**

A contraction (recession) is a period of declining real GDP. Weaker demand and rising unemployment reduce pressure on prices, so inflation pressure typically decreases, often with a lag.

Why the other options are wrong

- **A.** Unemployment usually rises in a contraction because hours are cut and, if the downturn persists, workers are laid off.
- **B.** In a contraction real GDP growth is low or negative. Growth above the sustainable rate is associated with an expansion, especially one nearing its peak.

Key takeaway Contraction: output falls, unemployment rises, inflation eases.

Reading 13: Understanding Business Cycles. Notes: credguild.com/cfa/level-1/notes/economics/business-cycle/

Question 55 **Answer: C**

Historical evidence suggests credit cycles have been *longer* on average than business cycles, so a claim that they are shorter is inaccurate. The other two statements are accurate: loose lending in good times can inflate asset prices beyond plausible levels, and expansions and contractions tend to be stronger and deeper when they coincide with credit cycles.

Why the other options are wrong

- **A.** Accurate. Loose credit can fuel bubbles, as happened with subprime mortgages before the 2007–2009 financial crisis.
- **B.** Accurate. Credit availability rises in expansions and shrinks in slowdowns, which reinforces the business cycle rather than dampening it.

Key takeaway Credit cycles amplify business cycles, can cause bubbles, and have tended to last longer than business cycles.

Reading 13: Understanding Business Cycles. Notes: credguild.com/cfa/level-1/notes/economics/business-cycle/

Question 56 **Answer: C**

Hiring and firing are costly and damage morale, so at the start of a slowdown firms reduce output by using existing labor and capital less intensively, for example by trimming overtime. Only when the contraction looks persistent do they reduce capacity by laying off workers and cutting physical capital, typically by deferring

maintenance or not replacing worn equipment.

Why the other options are wrong

- **A.** Layoffs are a later step, taken once management believes the contraction is likely to persist. They are not the initial response while the outlook is uncertain.
- **B.** Deferring maintenance is how firms shrink physical capacity. It cuts the capacity management wants to keep, so it belongs to the stage when the downturn looks durable.

Key takeaway Sequence in a slowdown: first reduce intensity of use (overtime, hours), then reduce capacity (layoffs, deferred maintenance).

Reading 13: Understanding Business Cycles. Notes: credguild.com/cfa/level-1/notes/economics/business-cycle/

Question 57 **Answer: A**

Consumer expectations about business conditions are a leading indicator: sentiment tends to turn before actual spending and output do.

Why the other options are wrong

- **B.** The average duration of unemployment is a lagging indicator. Spells of joblessness lengthen only after a contraction has been under way for a while.
- **C.** Industrial production is a coincident indicator; it moves with the cycle rather than ahead of it.

Key takeaway Expectations and orders lead; production and sales are coincident; duration, inventories-to-sales and the prime rate lag.

Reading 13: Understanding Business Cycles. Notes: credguild.com/cfa/level-1/notes/economics/business-cycle/

Question 58 **Answer: A**

Fiscal policy is the government's use of taxation and spending to influence economic activity. Cutting tax rates and raising infrastructure spending are both fiscal tools, and they are chosen here to influence growth.

Why the other options are wrong

- **B.** Monetary policy is conducted by the central bank through the quantity of money and credit (and short-term interest rates). Neither tax rates nor government spending are monetary tools.
- **C.** No central bank action (money supply or policy rate change) is involved, so nothing in the package is monetary policy.

Key takeaway Taxes and government spending mean fiscal policy; money, credit and policy rates mean monetary policy.

Reading 14: Fiscal Policy. Notes: credguild.com/cfa/level-1/notes/economics/fiscal-policy/

Question 59 **Answer: A**

With tax rates held constant, tax revenue grows with real GDP, while the debt grows with the interest paid on it. A government whose debt carries a real interest rate above real GDP growth sees its debt ratio climb over time; one whose real borrowing rate is below real growth sees the ratio shrink. In Tarsia the real interest rate of 3.1% exceeds real growth of 1.3%, so the ratio rises. In Morvenna the real interest rate of 0.9% is below real growth of 2.7%, so the ratio falls.

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With a balanced primary budget, the government borrows only to pay the interest on its debt, so in real terms the debt grows at r while real GDP grows at g. Next year's debt ratio is approximately

$$d_{t+1} \approx d_t \times \frac{1+r}{1+g}$$

Tarsia: $0.85 \times 1.031/1.013 = 0.8651$. The ratio rises from 85.0% to about 86.5% and keeps rising while $r > g$.

Morvenna: $0.50 \times 1.009/1.027 = 0.4912$. The ratio falls from 50.0% to about 49.1% and keeps falling while $r < g$.

Why the other options are wrong

- **B.** This looks only at the debt. A government with a balanced primary budget borrows to pay its interest, so debt grows in both countries. In Morvenna, however, real GDP grows at 2.7%, faster than the 0.9% real rate at which the debt grows, so debt shrinks relative to GDP.
- **C.** This treats a balanced primary budget as a balanced overall budget, as if the debt stayed constant while GDP grew. The primary balance leaves out interest, which is paid with new borrowing. In Tarsia the debt grows at a real 3.1% a year while real GDP grows only 1.3%, so the ratio rises.

Key takeaway With tax rates unchanged and a balanced primary budget, the debt-to-GDP ratio rises when the real interest rate on government debt exceeds real GDP growth and falls when it is below real growth. The comparison of r with g sets the direction; the starting level of the debt does not.

Reading 14: Fiscal Policy. Notes: credguild.com/cfa/level-1/notes/economics/fiscal-policy/

Question 60 **Answer: A**

Discretionary fiscal policy consists of the government's decisions about spending and taxes. Cutting spending on major public construction lowers aggregate demand and eases pressure on prices, which is the appropriate direction when inflation is high.

Why the other options are wrong

- **B.** Raising a policy interest rate target (like the federal funds target rate in the US) is a monetary policy action by the central bank. It fights inflation, but it is not fiscal policy.
- **C.** Reducing the money supply is also a monetary policy action.

Key takeaway Right direction is not enough; check the tool. Spending and taxes are fiscal, while interest rates and the money supply are monetary.

Reading 14: Fiscal Policy. Notes: credguild.com/cfa/level-1/notes/economics/fiscal-policy/

Question 61 **Answer: B**

Each round of extra spending becomes income. Part of it is taxed and the MPC share of what remains is spent again. The fiscal multiplier captures the total effect, and the potential increase in aggregate demand equals the change in spending times the multiplier.

$$\text{fiscal multiplier} = \frac{1}{1 - MPC(1-t)} = \frac{1}{1 - 0.90(1-0.30)} = \frac{1}{1-0.63} = \frac{1}{0.37} = 2.703$$

$$\Delta AD = \Delta G \times \text{multiplier} = 60 \times 2.703 = \$162.2 \text{ million}$$

First rounds: income $+60$; disposable income $60 \times 0.70 = 42$; new spending $42 \times 0.90 = 37.8$; then $37.8 \times 0.63 = 23.8$, and so on until the total converges to about 162.

Why the other options are wrong

- **A.** \$600 million uses $1/(1 - MPC) = 1/0.10 = 10$, ignoring the tax leakage. Taxes reduce the disposable income available for each round of spending.
- **C.** \$82 million puts the tax rate t in place of $(1 - t)$: $1/[1 - 0.90(0.30)] = 1/0.73 = 1.370$, and $60 \times 1.370 = 82.2$. The MPC applies to the after-tax share of income, $1 - t$.

Key takeaway Fiscal multiplier $= 1/[1 - MPC(1 - t)]$: it rises with the MPC and falls with the tax rate.

Reading 14: Fiscal Policy. Notes: credguild.com/cfa/level-1/notes/economics/fiscal-policy/

Question 62 **Answer: A**

When the change comes from policy decisions rather than from the business cycle, fiscal policy is judged expansionary if the deficit increases or the surplus decreases, and contractionary if the deficit decreases or the surplus increases. A widening deficit (Estavia) and a shrinking surplus (Marquessa) are both expansionary.

Why the other options are wrong

- **B.** Contractionary would require a shrinking deficit or a growing surplus, which is the opposite of both situations described.
- **C.** It is tempting to treat 'deficit' and 'surplus' as opposites. What matters is the *direction of change*, and both budgets moved toward more stimulus.

Key takeaway Look at the direction of change in the policy-driven (structural) budget balance. Whether the balance is a deficit or a surplus does not decide the stance.

Reading 14: Fiscal Policy. Notes: credguild.com/cfa/level-1/notes/economics/fiscal-policy/

Question 63 **Answer: A**

Because the central bank can create central bank money (reserves and currency) at will, it can lend to banks that run short of funds. Knowing this backstop exists assures depositors their money is safe and helps prevent bank runs. That is the lender-of-last-resort role.

Why the other options are wrong

- **B.** Holding the nation's gold and foreign currency reserves is a separate role. It concerns official reserves rather than emergency lending to domestic banks.
- **C.** Being the sole supplier of currency is what *enables* emergency lending, but the role being performed here is lending to banks in distress, i.e., lender of last resort.

Key takeaway Preventing bank runs by standing ready to lend to banks is the lender-of-last-resort role.

Reading 15: Monetary Policy. Notes: credguild.com/cfa/level-1/notes/economics/quantitative-easing/

Question 64 **Answer: A**

Buyers of the securities pay with funds that leave the banking system, so bank reserves fall. With fewer reserves to lend to one another, banks bid up the overnight rate, and the federal funds rate increases. This is how the Federal Reserve moves the rate toward a higher target.

Why the other options are wrong

- **B.** The reserve effect is right, but scarcer reserves push the federal funds rate up.
- **C.** This describes open market *purchases*, which add reserves and lower the federal funds rate.

Key takeaway Open market sale: reserves down, federal funds rate up.

Reading 15: Monetary Policy. Notes: credguild.com/cfa/level-1/notes/economics/quantitative-easing/

Question 65 **Answer: A**

A credible central bank is one whose stated targets people believe. They then base their decisions (wages, nominal contracts, loan pricing) on the target inflation rate, which helps make the target self-fulfilling.

Why the other options are wrong

- **B.** Transparency means periodically disclosing the state of the economy (e.g., inflation reports) and the indicators used. It supports credibility, but the behavior described is the definition of credibility itself.
- **C.** Target independence means the central bank determines how inflation is computed, sets the target level and the horizon. It says nothing about whether the public believes the target.

Key takeaway Decisions based on the announced target = credibility. Regular inflation reports = transparency. Deciding the policy rate or the target = independence.

Reading 15: Monetary Policy. Notes: credguild.com/cfa/level-1/notes/economics/quantitative-easing/

Question 66 **Answer: A**

The neutral rate of interest equals the real trend rate of growth plus the inflation target, 4.0%. The policy rate equals the neutral rate, so monetary policy is neither expansionary nor contractionary.

$$\text{neutral rate} = 1.6\% + 2.4\% = 4.0\%$$

Policy rate $= 4.0\% =$ neutral rate, so policy is neutral.

Why the other options are wrong

- **B.** Expansionary would require a policy rate below 4.0%.
- **C.** Contractionary would require a policy rate above 4.0%. This answer comes from comparing 4.0% with only the inflation target (2.4%) or the trend growth rate (1.6%).

Key takeaway When the policy rate equals trend real growth plus the inflation target, the stance is neutral.

Reading 15: Monetary Policy. Notes: credguild.com/cfa/level-1/notes/economics/quantitative-easing/

Question 67 **Answer: C**

When both policies are expansionary, government spending grows through fiscal policy while easier monetary policy keeps interest rates low, usually lower than before, which supports private consumption and investment. Both the public and the private sectors expand, and aggregate demand rises strongly. Expansionary fiscal policy also has a larger effect on output when monetary policy is expansionary at the same time.

Why the other options are wrong

- **A.** Tight monetary policy combined with fiscal expansion raises interest rates. Government spending grows as a share of GDP, but higher rates discourage private investment and consumption, so the private sector does not share in the expansion.

- **B.** Lower interest rates stimulate private spending, but contractionary fiscal policy reduces government spending as a share of GDP. The public sector shrinks, which conflicts with the goal.

Key takeaway Easy fiscal and easy monetary: rates usually lower, both sectors grow. Tight fiscal and tight monetary: rates higher, both sectors shrink. Easy fiscal and tight monetary: rates higher, the public sector's share rises. Tight fiscal and easy monetary: rates lower, the private sector's share rises.

Reading 15: Monetary Policy. Notes: credguild.com/cfa/level-1/notes/economics/quantitative-easing/

Question 68 Answer: C

In geopolitics, cooperation means interacting and engaging with other countries, for example by allowing goods to move freely across borders, harmonizing tariffs and standardizing rules. The regional agreement is therefore cooperative. Banning exports of a particular good restricts engagement with other countries, so it is noncooperative. Only one of the two actions is cooperative.

Why the other options are wrong

- **A.** The trade and standards agreement is a clear example of economic cooperation, so it is not true that neither action is cooperative.
- **B.** An export ban limits interaction with other countries and is noncooperative, so both actions cannot be cooperative. A country can be cooperative on some issues and noncooperative on others at the same time.

Key takeaway Cooperation is a spectrum and is judged issue by issue: trade agreements and harmonization are cooperative, while export bans and investment restrictions are noncooperative.

Reading 16: Introduction to Geopolitics. Notes: credguild.com/cfa/level-1/notes/economics/introduction-to-geopolitics/

Question 69 Answer: A

The World Bank describes its mission as fighting poverty, and it provides low-interest loans, interest-free credits and grants to developing countries for that purpose. The IMF's goals in Article I of its Articles of Agreement concern monetary cooperation, the growth of trade, exchange stability, the payments system and balance of payments support, and the WTO deals with the rules of trade. Neither Article I nor the WTO's role includes poverty reduction, so the World Bank is the only one of the three explicitly focused on it. The IMF's broader mission statement also mentions reducing poverty, which is why the comparison uses Article I.

Why the other options are wrong

- **B.** Expanding trade is not unique to the WTO. One of the IMF's main goals is facilitating the expansion and balanced growth of international trade.
- **C.** Providing funds is not unique to the IMF. The IMF makes resources available to members with balance of payments difficulties, but the World Bank also provides loans, credits and grants to developing countries for development.

Key takeaway Trade growth: IMF and WTO. Funding members: IMF and World Bank. Poverty: World Bank only.

Reading 16: Introduction to Geopolitics. Notes: credguild.com/cfa/level-1/notes/economics/introduction-to-geopolitics/

Question 70 Answer: C

Event risk arises from an event whose timing is known but whose outcome is uncertain. The referendum is scheduled a year ahead, while its result remains unknown.

Why the other options are wrong

- **A.** A known factor with effects that build over many years is thematic risk.
- **B.** A sudden rebellion with no advance warning is exogenous risk, not event risk.

Key takeaway Event risk: known timing, uncertain outcome. Exogenous risk: unanticipated events. Thematic risk: known factors whose effects develop over a long period.

Reading 16: Introduction to Geopolitics. Notes: credguild.com/cfa/level-1/notes/economics/introduction-to-geopolitics/

Question 71 **Answer: B**

The business cycle affects the impact of geopolitical risk. The same risk may have a greater effect on investment values during a recession than it would during an expansion.

Why the other options are wrong

- **A.** Scenario analysis, qualitative or quantitative, is a standard way to gauge the potential effects of geopolitical risks on a portfolio.
- **C.** Geopolitical risks can have discrete effects on a specific company or industry as well as broad effects on a country, a region or the world. Investors should judge which applies to each high-impact risk.

Key takeaway Focus analysis on high-impact risks, decide whether each is discrete or broad, allow for a larger impact in a recession, and use scenario analysis and signposts.

Reading 16: Introduction to Geopolitics. Notes: credguild.com/cfa/level-1/notes/economics/introduction-to-geopolitics/

Question 72 **Answer: B**

For the economy as a whole, the benefits of trade exceed the costs. The costs are concentrated among firms and workers in domestic industries that compete with imports, who may suffer lower profits or lost jobs.

Why the other options are wrong

- **A.** Not every group gains. Import-competing industries and their workers can lose, even though the gainers could in principle compensate them.
- **C.** Jobs lost in import-competing industries are offset by jobs created in export and growing industries, and over time retrained workers find new work. Economists do not conclude that trade's employment costs exceed its benefits.

Key takeaway Overall gains exceed losses, but the losses are concentrated in import-competing industries.

Reading 17: International Trade. Notes: credguild.com/cfa/level-1/notes/economics/comparative-advantage/

Question 73 **Answer: C**

A tariff is a tax on imported goods collected by the government; a quota caps the quantity that may be imported over a period. Both are trade restrictions imposed by individual countries.

Why the other options are wrong

- **A.** Tariffs are not set by international organizations. Individual countries impose both tariffs and quotas.
- **B.** A quota is not a worldwide agreement on total trade. It is a limit on imports set by the individual importing country, just as a tariff is.

Key takeaway Tariff = tax on imports; quota = quantity limit on imports; both are imposed by the importing

country.

Reading 17: International Trade. Notes: credguild.com/cfa/level-1/notes/economics/comparative-advantage/

Question 74 Answer: A

All three measures raise Tessaly's domestic price by the same amount and cut imports by the same quantity, so they cause the same loss of consumer surplus, the same gain in domestic producer surplus and the same deadweight losses. They differ in who receives the amount equal to the price increase times the remaining imports. Under a tariff the government collects it as tariff revenue, and under the auctioned quota the government captures it by selling the licenses. Under a voluntary export restraint the foreign exporters keep it as quota rents, so it is lost to Tessaly and the national welfare loss is the largest.

Illustration with assumed areas: consumer surplus falls by 50, domestic producer surplus rises by 20, the rectangle (price increase $\times$ remaining imports) is 18 and the two deadweight triangles total 12, so $50 = 20 + 18 + 12$.

Tariff: $-50 + 20 + 18 = -12$. Auctioned quota: $-50 + 20 + 18 = -12$. Voluntary export restraint: $-50 + 20 = -30$, because the rectangle goes to foreign exporters.

Why the other options are wrong

- **B.** A tariff causes the same price rise and deadweight losses, but the government collects tariff revenue equal to the price increase times the remaining imports. That revenue stays in Tessaly and offsets part of the consumers' loss.
- **C.** Auctioning the licenses for their full value lets the government capture the quota rents, so the national welfare effect matches the tariff. A quota would be as costly as the voluntary export restraint only if its licenses were given away to foreign exporters.

Key takeaway For an importing country, the national welfare loss from a tariff equals that from a quota whose licenses are sold at full value. A voluntary export restraint, like a quota whose rents go to foreign exporters, adds the quota rents to the loss.

Reading 17: International Trade. Notes: credguild.com/cfa/level-1/notes/economics/comparative-advantage/

Question 75 Answer: B

Integration increases in this order: free trade area, customs union, common market, economic union, monetary union. Each step adds a feature: common external trade restrictions (customs union), free movement of labor and capital (common market), common institutions and economic policy (economic union), and a single currency (monetary union). The sequence free trade area, customs union, common market follows that order.

Why the other options are wrong

- **A.** A customs union is less integrated than a common market, so it cannot come after it.
- **C.** A free trade area is the least integrated form, so it cannot come after a customs union.

Key takeaway Least to most integrated: free trade area, customs union, common market, economic union, monetary union.

Reading 17: International Trade. Notes: credguild.com/cfa/level-1/notes/economics/comparative-advantage/

Question 76 **Answer: A**

Leveraged accounts are investment firms such as hedge funds, proprietary trading firms and other trading firms that make substantial use of leverage, typically through derivatives. Real money accounts, such as mutual funds, pension funds, insurance companies and similar institutional accounts, are restricted in their use of leverage. Both are buy-side participants.

Why the other options are wrong

- **B.** Quoting two-way prices is the role of the dealers on the sell side (large multinational banks). Leveraged accounts are buy-side clients of those dealers.
- **C.** Being restricted to long-term, unleveraged holdings describes a real money account, the opposite of a leveraged account.

Key takeaway Leveraged accounts (hedge funds, trading firms) use leverage extensively, typically via derivatives; real money accounts (mutual funds, pension funds, insurers) are restricted in their use of leverage.

Reading 18: Capital Flows and the FX Market. Notes: credguild.com/cfa/level-1/notes/economics/capital-flows-and-the-fx-market/

Question 77 **Answer: C**

The real domestic/foreign rate equals the nominal domestic/foreign rate multiplied by $CPI_{\text{foreign}}/CPI_{\text{domestic}}$. The domestic price level sits in the denominator, so an increase in it lowers the real exchange rate and raises the purchasing power of the domestic currency over foreign goods.

$$\text{real D/F} = \text{nominal D/F} \times \frac{CPI_F}{CPI_D}$$

Here D (the domestic currency) is the price currency and F is the base currency. Raising CPI_D shrinks the ratio, so the real rate falls; raising CPI_F or the nominal rate increases it.

Why the other options are wrong

- **A.** A higher foreign price level raises the real rate: foreign goods become more expensive relative to domestic goods, so the domestic currency loses purchasing power over foreign goods.
- **B.** The real rate equals the nominal rate times a price-level ratio, so a higher nominal domestic/foreign rate raises the real rate, other things equal.

Key takeaway In the real P/B formula the base-country CPI is on top and the price-country CPI is on the bottom. Other things equal, a higher price level in the price-currency country lowers the real rate, while a higher base-country price level or a higher nominal rate raises it.

Reading 18: Capital Flows and the FX Market. Notes: credguild.com/cfa/level-1/notes/economics/capital-flows-and-the-fx-market/

Question 78 **Answer: A**

Under a currency board arrangement the monetary authority commits to convert its own currency into one named foreign currency on demand at a fixed rate, and it may issue domestic currency only when every unit is backed by reserves of that foreign currency. The country keeps its own currency and earns interest on its

reserves, but it gives up independent monetary policy and in effect imports the inflation rate of the anchor currency.

Why the other options are wrong

- **B.** Under formal dollarization a country has no currency of its own; it uses another country's currency, and the interest earned on the assets backing that currency goes to the issuing central bank. Pelagia issues its own dinars and earns interest on its reserves.
- **C.** A conventional fixed peg keeps the currency within a narrow band, about 1% either side of the target rate, through intervention and policy, without a rule that every unit of domestic currency be backed by foreign reserves. The monetary authority keeps more policy flexibility than under a currency board.

Key takeaway Currency board: the country has its own currency, fully backed by an anchor currency at a fixed rate; its reserves earn interest, and it has no independent monetary policy.

Reading 18: Capital Flows and the FX Market. Notes: credguild.com/cfa/level-1/notes/economics/capital-flows-and-the-fx-market/

Question 79 **Answer: C**

A commonly cited objective of capital restrictions is to keep domestic interest rates low, not high. When residents cannot move funds abroad to chase higher yields, the central bank can keep rates low and run a more independent monetary policy. Maintaining fixed exchange rates and protecting strategic industries are also standard objectives.

Why the other options are wrong

- **A.** Limiting capital flows makes an exchange rate target easier to defend, so this is a standard objective.
- **B.** Governments often bar foreign investment in sectors such as defense and telecommunications, so this is a standard objective.

Key takeaway Capital controls let a country keep domestic rates low while defending its exchange rate.

Reading 18: Capital Flows and the FX Market. Notes: credguild.com/cfa/level-1/notes/economics/capital-flows-and-the-fx-market/

Question 80 **Answer: B**

Convert EUR/USD into USD/EUR by inverting, then divide by NZD/EUR (equivalently, multiply by EUR/NZD) so the euro cancels and USD/NZD remains.

$$\text{USD/EUR} = \frac{1}{0.9240} = 1.08225$$

$$\frac{\text{USD}}{\text{NZD}} = \frac{\text{USD/EUR}}{\text{NZD/EUR}} = \frac{1.08225}{1.7960} = 0.60259$$

Why the other options are wrong

- **A.** This divides EUR/USD by NZD/EUR without first inverting EUR/USD, so the units do not cancel to USD/NZD.
- **C.** This multiplies the two quotes: $0.9240 \times 1.7960 = 1.6595$. The units (EUR/USD $\times$ NZD/EUR) give NZD/USD, which is the inverse of the USD/NZD rate asked for ($1/1.6595 = 0.60259$).

Key takeaway Invert first, then chain the quotes so the common currency cancels.

Reading 19: Exchange Rate Calculations. Notes: credguild.com/cfa/level-1/notes/economics/exchange-rate-calculations/

Question 81 Answer: B

The no-arbitrage forward rate equals spot times (1 + price-currency rate for the period) / (1 + base-currency rate for the period). Money market rates are de-annualized using days/360. Because the US dollar (base currency) has the higher rate, it trades at a forward discount, so the forward rate is below spot.

$$F_{CAD/USD} = 1.3450 \times \frac{1 + 0.0420\,(180/360)}{1 + 0.0540\,(180/360)} = 1.3450 \times \frac{1.0210}{1.0270} = 1.3450 \times 0.99416 = 1.3371$$

Why the other options are wrong

- **A.** This uses the full annual rates ($1.3450 \times 1.042/1.054$) instead of the 180-day rates.
- **C.** This puts the USD (base-currency) rate in the numerator; the price-currency (CAD) rate belongs on top.

Key takeaway For forwards shorter than one year, scale each money market rate by days/360 before applying the parity formula.

Reading 19: Exchange Rate Calculations. Notes: credguild.com/cfa/level-1/notes/economics/exchange-rate-calculations/

Question 82 Answer: C

Interest rate parity is a no-arbitrage condition: at a point in time, the higher-yielding currency trades at a forward discount so that borrowing in one currency and investing in the other with a forward cover earns no riskless profit. It does not say how the spot rate responds when interest rates change, and interest rate differentials have historically been poor predictors of future spot rates. Capital-market analysis points the other way: a higher domestic interest rate attracts foreign investment, which raises demand for the currency and tends to make it appreciate. Okoye's comment follows this reasoning, while Ruiz treats the forward rate as a forecast.

Why the other options are wrong

- **A.** Ruiz treats the no-arbitrage forward rate as the expected future spot rate. Parity only sets the forward rate that rules out arbitrage today; it does not describe how the spot rate moves after a rate change, and rate differentials have forecast future spot rates poorly.
- **B.** A change in the policy rate does affect the exchange rate. The exchange rate is one channel of the monetary transmission mechanism: higher domestic rates attract capital and tend to strengthen the domestic currency.

Key takeaway Treat the no-arbitrage forward rate as the rate that prevents arbitrage today; it is not a forecast of the future spot rate. A higher domestic interest rate tends to attract capital and strengthen the currency.

Reading 19: Exchange Rate Calculations. Notes: credguild.com/cfa/level-1/notes/economics/exchange-rate-calculations/

Question 83 Answer: B

The forward SGD/AUD rate is below spot, so the forward quote is a discount. With four-decimal quotes the difference of 0.0075 equals 75 points. The AUD (base currency) is at a forward discount, which means the SGD (price currency) is at a forward premium to the AUD.

$$F - S = 0.8795 - 0.8870 = -0.0075 = -75 \text{ points}$$

AUD: $0.8795/0.8870 - 1 = -0.85\%$ (discount); SGD: $0.8870/0.8795 - 1 = +0.85\%$ (premium).

Why the other options are wrong

- **A.** The forward rate is below spot, so the quote is a discount of 75 points. The SGD, as the price currency, is at a premium.
- **C.** Each point is 0.0001, so a 0.0075 difference is 75 points. The SGD is also at a premium, because the AUD buys fewer SGD forward than spot.

Key takeaway The sign of the points describes the base currency; the price currency moves the other way.

Reading 19: Exchange Rate Calculations. Notes: credguild.com/cfa/level-1/notes/economics/exchange-rate-calculations/

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CFA® PROGRAM LEVEL I · FREE PRACTICE QUESTIONS

Corporate Finance

Questions 84–108 · 7 readings

20 Organizational Forms, Corporate Issuer Features, and Ownership

Question 84

Two siblings plan to buy and operate a vineyard. They will manage it themselves and accept unlimited liability for its debts. Four cousins will contribute capital but will take no part in running the business and want their liability capped at the amount they invest. The *most appropriate* organizational form is a:

A limited partnership.

B general partnership.

C limited liability partnership.

Question 85

An analyst drafts a list of features of Kittredge Marine, a corporation. Which item on her list is *incorrect*?

A Kittredge's shareholders do not have to take part in managing the company.

B Kittredge has no legal identity apart from that of its shareholders.

C Kittredge's profits may be taxed at the corporate level and again when paid out as dividends.

Question 86

Brenmoor Robotics is privately held. Its board wants to bring in new equity capital and, at the same time, allow its shares to be bought and sold by the public on a stock exchange. The board is *most likely* to pursue:

A a direct listing of its existing shares.

B a management buyout.

C an initial public offering.

21 Shareholder vs Stakeholder

Question 87

Orrin Freight has bank loans, preferred stock and common stock outstanding. Which of the following payments are contractual obligations of Orrin?

A Interest and principal on its bank loans.

B Interest on its loans and dividends on its common stock.

C Interest and principal on its loans, and dividends on its preferred stock.

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Question 88

Which of the following *best* describes the primary focus of the stakeholder theory of corporate governance?

A Serving the interests of groups other than shareholders in place of the interests of shareholders.

B Maximizing the market value of the company's common equity.

C Resolving the conflicting interests of the company's managers and the various groups affected by what the company does.

Question 89

Ardent Power generates most of its electricity from coal. New national emissions limits and a steady shift in customer demand toward low-carbon energy threaten to make several of its plants uneconomic before the end of their useful lives. The climate-related risk Ardent faces is *best* described as:

A physical risk.

B transition risk.

C governance risk.

22 Principal Agent Problem

Question 90

Between which two parties associated with a company does a principal-agent relationship *most likely* exist?

A Its customers and its suppliers.

B Its directors and its regulators.

C Its shareholders and its managers.

Question 91

Ridgeway Partners, a hedge fund, has built a 7% stake in Almont Paper and has started a proxy contest to replace three directors. Ridgeway's main aim is *most likely* to:

A keep the current board and management in place.

B reduce Almont's debt to protect its bondholders.

C increase the value of Almont's shares.

Question 92

The board of Castleford Water is drafting the charter of its new audit committee. Which of the following duties should be assigned to a different board committee instead?

A Overseeing the financial reporting process and the application of accounting policies.

B Reviewing the effectiveness of internal controls and of the internal audit function.

C Overseeing the company's corporate governance code, including board elections.

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23 Cash Conversion Cycle

Question 93

The CFO of Brightwater Distributors wants to shorten the company's cash conversion cycle (CCC). Which of the following changes would achieve this goal?

A Days sales outstanding increases.

B Days payable outstanding decreases.

C Days of inventory on hand decreases.

Question 94

Kellan Foods buys ingredients from a supplier that offers terms of 3/15, net 75. Kellan can also borrow from its bank at an annual rate of 9%. Which source of financing is cheaper for Kellan?

A Borrowing from the bank.

B Forgoing the discount and using the supplier's credit.

C The two sources cost the same.

Question 95

Talbridge Electronics' main component suppliers have cut the trade credit line they extend to it and now require payment within 15 days instead of 45 days. For Talbridge, this development is *best* described as a:

A drag on liquidity.

B pull on liquidity.

C secondary source of liquidity.

Question 96

Three companies describe how they handle their working capital. Whose practice fits a conservative approach *best*?

A A distributor pays its warehouse rent and staff wages with rolling 90-day bank loans.

B A manufacturer keeps far more long-term assets than short-term assets relative to its sales.

C A retailer finances its inventory with a ten-year term loan.

24 NPV vs IRR

Question 97

Tamsin Foods is reviewing three capital projects. Which one would typically need the *most* detailed analysis?

A Replacing a packaging machine that still works with a newer model that costs less to run.

B Launching a new product line in a region where the company does not yet sell.

C Installing fire-suppression equipment that the company's insurer now requires.

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Question 98

Harwick Instruments has estimated that a proposed sensor line has an internal rate of return of 11.5% and a net present value of +$1.9 million. The company's 9.0% cost of capital is appropriate for the risk of the line. Harwick should *most likely*:

A reject the line, based on both its NPV and its IRR.

B accept the line, but only on the basis of its NPV.

C accept the line, based on both its NPV and its IRR.

Question 99

Fenmoor Packaging earns an operating margin after tax of 8.0%, and its sales are 1.5 times its invested capital. The blended rate of return that its debt and equity investors require is 10.0%. Which statement about Fenmoor is *most accurate*?

A Its ROIC is 5.3%, so it is losing value over time.

B Its ROIC is 8.0%, so it is losing value over time.

C Its ROIC is 12.0%, so it is adding value over time.

Question 100

For the past eight years, Farrow Plastics' capital budget has been set at roughly the prior year's amount plus 3%, even though the returns on its recent projects have been falling. This practice is best described as which capital allocation pitfall?

A Failure to generate alternative investment ideas.

B Pet projects of senior management.

C Inertia in setting the entire capital budget.

Question 101

Kinloss Cold Storage is evaluating a refrigerated warehouse that would cost $8.20 million today. Discounted at Kinloss's required rate of return, the warehouse's expected after-tax cash flows have a present value of $7.65 million. For an additional $0.45 million paid now, Kinloss can buy the adjoining parcel of land, which would allow it to double the warehouse's capacity later if demand justifies it. Using a decision tree, Kinloss's analysts value this expansion option at $1.30 million. The NPV of the warehouse project including the expansion option is *closest* to:

A +$0.30 million.

B −$0.55 million.

C −$1.00 million.

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25 Modigliani Miller

Question 102

Harlan Steelworks has no preferred stock. An equity analyst wants a WACC figure that measures Harlan's current opportunity cost of capital, and she has collected these data:

Harlan Steelworks: capital and cost data

Item	Value
Debt, market value	$175 million
Debt, book value	$200 million
Common equity, market value	$525 million
Common equity, book value	$900 million
Yield to maturity on Harlan's bonds (pretax cost of debt)	5.6%
Cost of common equity	13.2%
Marginal tax rate	25%

Interest expense is tax-deductible. Harlan's WACC is *closest* to:

A 10.95%.

B 11.30%.

C 11.56%.

Question 103

Treloar Bakeries' revenue growth has slowed to a few percent a year, its operating cash flow is large and stable, and its business risk is low. Given its life cycle stage, Treloar is *most likely* to be financed with:

A equity almost exclusively, possibly with some convertible debt.

B a significant amount of debt, including unsecured debt at relatively low cost.

C limited debt, used conservatively and secured by receivables or fixed assets.

Question 104

Sorrel Systems would have a cost of equity of 10.5% if it had no debt. The company borrows at 6.0%, has a debt-to-equity ratio of 0.6, and faces a 25% corporate tax rate. Under Modigliani and Miller's Proposition II with taxes, Sorrel's cost of equity is *closest* to:

A 13.20%.

B 12.53%.

C 11.77%.

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Question 105

Halvard Retail generates far more cash than it can invest profitably. One of its directors argues that the company should take on more debt, because the required interest and principal payments would leave management with less spare cash to spend on lavish perks and low-return acquisitions. The director's argument is *most* consistent with:

A pecking order theory.

B the use of debt to signal management's confidence.

C the free cash flow hypothesis.

26 Business Models

Question 106

An analyst is writing up the business model of Seabrook Outfitters. Which of the following items is *least likely* to belong in the description of the business model?

A Detailed forecasts of revenue and expenses for the next five years.

B The customer groups the company targets and how it reaches them.

C The key assets and critical suppliers the company relies on.

Question 107

A laptop maker has sold a premium keyboard, a high-resolution display and three years of on-site support as separate options. For its next model it decides to stop selling them separately and to include all three with the laptop for one combined base price. Which pricing model *best* reflects this decision?

A Value-based pricing.

B Bundling.

C Dynamic pricing.

Question 108

Fairfield Mills produces breakfast cereals that are sold only under the store brands of several large supermarket chains. Fairfield's name does not appear on any package. Which business model *best* describes Fairfield Mills?

A Value-added reseller.

B Licensing agreement.

C Private label manufacturer.

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CORPORATE FINANCE

Answers and explanations

Answer key: 84. A · 85. B · 86. C · 87. A · 88. C · 89. B · 90. C · 91. C · 92. C · 93. C · 94. A · 95. B · 96. C · 97. B · 98. C · 99. C · 100. C · 101. A · 102. A · 103. B · 104. B · 105. C · 106. A · 107. B · 108. C

Question 84 Answer: A

A limited partnership combines general partners, who manage the business and have unlimited liability (the siblings), with limited partners, whose liability is limited to their investment (the cousins). That is the mix described.

Why the other options are wrong

- **B.** In a general partnership every partner is a general partner with unlimited liability, so the cousins could not cap their liability.
- **C.** A limited liability partnership has no general partner: every partner has a liability shield. It does not fit owners who choose to accept unlimited liability, and some US states restrict LLPs to designated professions such as law and accounting.

Key takeaway Mixed roles (managers with unlimited liability + passive investors with limited liability) point to a limited partnership.

Reading 20: Organizational Forms, Corporate Issuer Features, and Ownership. Notes: credguild.com/cfa/level-1/notes/corporate-finance/organizational-forms-corporate-issuer-features-and-ownership/

Question 85 Answer: B

The defining feature of a corporation is its legal identity, separate from that of its owners and its managers. It is formed by filing articles of incorporation with a regulator and, as a legal person, it can hire employees, enter into contracts, and borrow and lend in its own name. Having no legal identity apart from the owner describes a sole proprietorship, whose business is legally an extension of its owner. For a corporation this item is the error on the list.

Why the other options are wrong

- **A.** This item is accurate. Ownership and management are separated in a corporation: shareholders elect the board, which hires the managers. A large shareholder may sit on the board or serve as an executive, but most shareholders take no management role.
- **C.** This item is accurate for a country that taxes corporate earnings and also taxes dividends as personal income, which is why it says profits *may* be taxed twice. The second layer of tax falls on distributed profit, so the burden is smaller when the company retains more of its earnings.

Key takeaway Key features of a corporation: separate legal identity, owners separated from managers, limited liability for shareholders, and possible double taxation of distributed profits.

Reading 20: Organizational Forms, Corporate Issuer Features, and Ownership. Notes: credguild.com/cfa/level-1/notes/corporate-finance/organizational-forms-corporate-issuer-features-and-ownership/

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Question 86 **Answer: C**

An initial public offering (IPO) typically includes new shares sold by the company to the public (existing holders may sell some shares as well), so the proceeds add to its equity capital, and the shares then trade on an exchange. It is the only choice that achieves both of the board's goals.

Why the other options are wrong

- **A.** A direct listing of existing shares makes them tradable on an exchange, but no new shares are sold, so the company raises no new capital. Some exchanges also allow a primary direct listing that sells new shares, but this option lists existing shares only.
- **B.** A management buyout is a way of taking a public company private; it raises no equity for the company and moves in the opposite direction.

Key takeaway IPO = go public, typically raising new capital; direct listing of existing shares = go public without raising capital; buyout = go private.

Reading 20: Organizational Forms, Corporate Issuer Features, and Ownership. Notes: credguild.com/cfa/level-1/notes/corporate-finance/organizational-forms-corporate-issuer-features-and-ownership/

Question 87 **Answer: A**

Lenders have a legal, contractual claim to the interest and principal payments the company has promised. Owners have only a residual claim: the company may pay dividends, but it is not required to.

Why the other options are wrong

- **B.** Common stock dividends are paid at the board's discretion. They are not a contractual obligation.
- **C.** Preferred stock dividends are also not a contractual obligation of the company. Only interest and principal owed to lenders are.

Key takeaway Contractual = interest + principal to lenders. Dividends (common or preferred) = discretionary distributions to owners.

Reading 21: Investors and Other Stakeholders. Notes: credguild.com/cfa/level-1/notes/corporate-finance/shareholder-vs-stakeholder/

Question 88 **Answer: C**

Under stakeholder theory, corporate governance deals with the competing interests of the people who run the company and all the groups its actions affect. Shareholders are one of those groups, alongside creditors, employees, suppliers, customers, communities and governments.

Why the other options are wrong

- **A.** Stakeholder theory does not replace shareholders' interests with those of other groups. Shareholders are among the stakeholders whose interests are balanced.
- **B.** Maximizing the value of common equity is the focus of shareholder theory.

Key takeaway Stakeholder theory = balance everyone, shareholders included. Shareholder theory = maximize equity value.

Reading 21: Investors and Other Stakeholders. Notes: credguild.com/cfa/level-1/notes/corporate-finance/shareholder-vs-stakeholder/

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Question 89 **Answer: B**

Transition risk arises when government regulation or consumer choices force a shift from high-carbon to low-carbon activities. Assets made unviable by that shift, like Ardent's coal plants, become stranded assets.

Why the other options are wrong

- **A.** Physical risk is the risk of damage to assets or operations from climate events such as more frequent severe weather. Nothing in the scenario involves physical damage.
- **C.** Governance factors concern board composition, executive pay, bribery, lobbying and similar matters. The threat here comes from environmental regulation and market shifts. How the company is governed is not the issue.

Key takeaway Climate risk splits into physical risk (weather damage) and transition risk (rules and preferences moving to low carbon); assets killed by transition become stranded assets.

Reading 21: Investors and Other Stakeholders. Notes: credguild.com/cfa/level-1/notes/corporate-finance/shareholder-vs-stakeholder/

Question 90 **Answer: C**

In a principal-agent relationship one party hires another to act on its behalf. Shareholders (the principals), acting through the board of directors, hire managers (the agents) to run the company in the shareholders' best interests.

Why the other options are wrong

- **A.** Customers and suppliers deal with the company under contracts; neither hires the other to act on its behalf.
- **B.** Regulators oversee companies to enforce laws. Directors are not agents hired by regulators; they are agents of the shareholders.

Key takeaway Shareholders = principals; managers and directors = agents. Their differing interests create agency costs.

Reading 22: Corporate Governance: Conflicts, Mechanisms, Risks, and Benefits. Notes: credguild.com/cfa/level-1/notes/corporate-finance/principal-agent-problem/

Question 91 **Answer: C**

Activist shareholders hold significant stakes and push for changes they believe will increase shareholder value. Their tactics include shareholder lawsuits, seeking board seats, shareholder resolutions, proxy contests and tender offers. Hedge funds increasingly act as activists at companies where they hold large stakes.

Why the other options are wrong

- **A.** A proxy contest seeks shareholders' proxies to vote for the activist's alternative proposals, such as new directors. Its purpose is to change the board, not to keep it.
- **B.** The fund is a shareholder. Its interest is the value of its shares; protecting bondholders is not what activists pursue.

Key takeaway Activists buy a sizable stake and use lawsuits, board seats, resolutions, proxy contests or tender offers to raise shareholder value.

Reading 22: Corporate Governance: Conflicts, Mechanisms, Risks, and Benefits. Notes: credguild.com/cfa/level-1/notes/corporate-finance/principal-agent-problem/

Question 92 **Answer: C**

Oversight of the corporate governance code and of board elections belongs to the nominating/governance committee. That committee also sets nomination policy for board candidates, implements the code of ethics and conflict-of-interest policies, and monitors compliance with laws, regulations and the company's governance policies. The audit committee's work centers on financial reporting and control.

Why the other options are wrong

- **A.** Overseeing financial reporting and the implementation of accounting policies is a core audit committee duty.
- **B.** Reviewing internal controls and the internal audit function is also an audit committee responsibility, as are recommending the external auditor and its pay (which shareholders then approve as an ordinary resolution) and proposing remedies based on audit findings.

Key takeaway Audit committee: financial reporting, accounting policies, internal controls and internal audit, and the choice and pay of the external auditor. Nominating/governance committee: governance code, board nominations and elections, ethics and compliance.

Reading 22: Corporate Governance: Conflicts, Mechanisms, Risks, and Benefits. Notes: credguild.com/cfa/level-1/notes/corporate-finance/principal-agent-problem/

Question 93 **Answer: C**

The CCC equals DOH plus DSO minus DPO and measures how long cash is tied up in inventory and receivables before it returns from sales. Selling inventory faster lowers DOH and therefore shortens the CCC.

$$\text{CCC} = \text{DOH} + \text{DSO} - \text{DPO}$$

A lower DOH shortens the CCC; a higher DSO or a lower DPO lengthens it.

Why the other options are wrong

- **A.** Slower collection of receivables raises DSO and lengthens the CCC.
- **B.** Paying suppliers sooner lowers DPO; because DPO is subtracted, the CCC gets longer.

Key takeaway CCC falls when DOH or DSO falls, or when DPO rises.

Reading 23: Working Capital and Liquidity. Notes: credguild.com/cfa/level-1/notes/corporate-finance/cash-conversion-cycle/

Question 94 **Answer: A**

Forgoing a 3% discount to delay payment by 60 days is an implicit loan from the supplier. Its effective annual rate is about 20.4%, far above the 9% explicit cost of bank borrowing, so Kellan should borrow from the bank and pay within 15 days to take the discount.

Financing period $= 75 - 15 = 60$ days; forgoing the discount means paying \$3 extra for each \$97 of credit.

$$\text{EAR} = \left(1 + \frac{0.03}{1 - 0.03}\right)^{365/60} - 1 = (1.030928)^{6.0833} - 1 \approx 0.2036 = 20.4\%$$

Bank: 9%. Since 20.4% > 9%, the bank is cheaper.

Why the other options are wrong

- **B.** Comparing the 3% discount with the 9% bank rate ignores the time period: the 3% is earned for only 60 days, which annualizes to about 20.4%. Supplier credit is therefore the more expensive source.
- **C.** The costs are far apart (about 20.4% vs. 9%). Even a simple, uncompounded annualization ($3.093\% \times 365/60 \approx 18.8\%$) is well above the bank rate.

Key takeaway Terms a/b net c: $\text{EAR} = \left(1 + \frac{a}{1-a}\right)^{365/(c-b)} - 1$, with a as a decimal. Trade credit that forgoes a discount is usually far more expensive than a bank loan.

Reading 23: Working Capital and Liquidity. Notes: credguild.com/cfa/level-1/notes/corporate-finance/cash-conversion-cycle/

Question 95 **Answer: B**

A pull on liquidity occurs when cash outflows speed up, for example when suppliers reduce credit lines or demand faster payment. Days payable outstanding falls, the cash conversion cycle lengthens and liquidity is reduced.

Why the other options are wrong

- **A.** A drag on liquidity is a delay in cash inflows, such as slow-moving or obsolete inventory or slow collection of receivables. Here the problem is faster outflows.
- **C.** Secondary sources of liquidity are actions the firm can take to raise cash, such as suspending dividends, delaying capital spending, selling assets, issuing equity or restructuring debt. Losing supplier credit reduces liquidity rather than providing it.

Key takeaway Drag = inflows slow down (DOH or DSO up). Pull = outflows speed up (DPO down).

Reading 23: Working Capital and Liquidity. Notes: credguild.com/cfa/level-1/notes/corporate-finance/cash-conversion-cycle/

Question 96 **Answer: C**

A conservative approach finances working capital, including permanent needs such as inventory, salaries and rent, with long-term sources (long-term debt and equity). It also involves holding relatively high levels of short-term assets compared with long-term assets.

Why the other options are wrong

- **A.** Paying recurring costs such as rent and wages with short-term borrowing that must be rolled over is typical of an aggressive approach.
- **B.** Conservative firms hold relatively *more* short-term assets. A firm with low short-term assets relative to long-term assets is closer to the aggressive end.

Key takeaway Conservative: lots of current assets, long-term financing. Aggressive: few current assets, short-term financing.

Reading 23: Working Capital and Liquidity. Notes: credguild.com/cfa/level-1/notes/corporate-finance/cash-conversion-cycle/

Question 97 **Answer: B**

An expansion project that brings a new product into a new market requires forecasts of demand, revenues and expenses that are all highly uncertain. It therefore needs the most detailed analysis of the three.

Why the other options are wrong

- **A.** Replacing a usable machine to lower costs is a going concern project. It needs a cost comparison, but its cash flows are much easier to estimate than those of a new product in a new market.
- **C.** Insurer-mandated safety equipment is a regulatory/compliance project. The firm must do it, so the analysis centers on comparing alternative ways of complying.

Key takeaway Depth of analysis rises with uncertainty. Projects that maintain the business need little analysis, regulatory/compliance projects call for comparing alternative ways to comply, and expansion and other projects need the most detailed analysis.

Reading 24: Capital Investments and Capital Allocation. Notes: credguild.com/cfa/level-1/notes/corporate-finance/npv-vs-irr/

Question 98 Answer: C

Both decision rules point the same way. The NPV is positive, so the line is expected to add value for shareholders. The IRR of 11.5% is above the 9.0% cost of capital (the hurdle rate), so the IRR rule also says accept. For a conventional, independent project the two rules always agree, because a discount rate below the IRR produces a positive NPV.

Why the other options are wrong

- **A.** Rejection would require a negative NPV and an IRR below the hurdle rate. Here the NPV is positive and 11.5% > 9.0%.
- **B.** The IRR rule also supports acceptance (11.5% exceeds 9.0%). Relying on the NPV alone would only be needed if the two rules conflicted, and they do not here.

Key takeaway Positive NPV and IRR above the cost of capital go together for a conventional independent project: accept on both criteria.

Reading 24: Capital Investments and Capital Allocation. Notes: credguild.com/cfa/level-1/notes/corporate-finance/npv-vs-irr/

Question 99 Answer: C

Return on invested capital (ROIC) is after-tax operating profit divided by invested capital, which equals the operating margin after tax times capital turnover. Analysts compare ROIC with the blended rate of return required by debt and equity investors. Fenmoor's ROIC of 12.0% is above the 10.0% required return, so it is adding value over time.

$$ROIC = \frac{\text{after-tax operating profit}}{\text{sales}} \times \frac{\text{sales}}{\text{invested capital}} = 8.0\% \times 1.5 = 12.0\%$$

Compare: $12.0\% > 10.0\%$, so the firm earns more than its investors require.

Why the other options are wrong

- **A.** 5.3% divides the margin by the turnover, $8.0\%/1.5$. ROIC is the product of the two ratios.
- **B.** 8.0% is the operating margin after tax alone. It measures profit per unit of sales and leaves out how hard the invested capital is worked.

Key takeaway ROIC = operating margin after tax × capital turnover. ROIC above the blended required return means the firm is adding value over time.

Reading 24: Capital Investments and Capital Allocation. Notes: credguild.com/cfa/level-1/notes/corporate-finance/npv-vs-irr/

Question 100 **Answer: C**

Anchoring each year's capital budget to the prior year's, rather than to the positive-NPV opportunities actually available, is the behavioral bias of inertia. A budget that stays the same or keeps rising while returns fall is the usual warning sign. A firm focused on shareholder value would return excess funds when good projects are scarce.

Why the other options are wrong

- **A.** This bias is stopping at the first acceptable idea without searching for better ones. It concerns which projects are proposed rather than how the size of the budget is set.
- **B.** Pet projects are individual projects backed by influential executives that get optimistic forecasts and little scrutiny. Nothing in the scenario points to a favored project.

Key takeaway A static or steadily rising capital budget combined with declining returns signals inertia (anchoring to last year's budget).

Reading 24: Capital Investments and Capital Allocation. Notes: credguild.com/cfa/level-1/notes/corporate-finance/npv-vs-irr/

Question 101 **Answer: A**

A real option is brought into the project analysis by adding its estimated value to the NPV without the option and deducting any extra cost of acquiring it. On its own the warehouse has an NPV of −$0.55 million. The expansion option is worth $0.85 million more than it costs, which more than covers that shortfall, so the project with the option has a positive NPV and is worth undertaking.

NPV without the option, in millions of dollars: $7.65 - 8.20 = -0.55$.

$$\text{NPV}_{\text{with option}} = \text{NPV}_{\text{without option}} - \text{cost of option} + \text{value of option}$$

$$\text{NPV}_{\text{with option}} = -0.55 - 0.45 + 1.30 = +0.30$$

The project with the expansion option has an NPV of about +$0.30 million.

Why the other options are wrong

- **B.** −$0.55 million is the warehouse's NPV without the option. It leaves out both the $1.30 million value of the expansion option and the $0.45 million paid for it. The NPV without real options serves only as the project's minimum value.
- **C.** −$1.00 million deducts the $0.45 million cost of the option but gives no credit for its $1.30 million value, as if the option were worth something only once exercised. A real option has value today, and that value can never fall below zero.

Key takeaway $\text{NPV}_{\text{with option}} = \text{NPV}_{\text{without option}} - \text{cost of option} + \text{value of option}$. A project with a negative stand-alone NPV becomes acceptable when the option's value, net of its cost, exceeds that shortfall.

Reading 24: Capital Investments and Capital Allocation. Notes: credguild.com/cfa/level-1/notes/corporate-finance/npv-vs-irr/

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Question 102 **Answer: A**

Market-value weights reflect current market conditions, so they are the right weights for measuring the current opportunity cost of capital. Total capital at market value is $175 + 525 = \$700$ million, so debt is 25% and equity 75%. Because interest is tax-deductible, the cost of debt enters the WACC after tax.

Market-value weights: $w_d = 175/700 = 0.25$; $w_e = 525/700 = 0.75$.

After-tax cost of debt: $5.6\% \times (1 - 0.25) = 4.2\%$.

$$WACC = w_d\, r_d(1 - t) + w_e\, r_e = 0.25(4.2\%) + 0.75(13.2\%) = 1.05\% + 9.90\% = 10.95\%$$

Why the other options are wrong

- **B.** 11.30% uses the correct market-value weights but the 5.6% pretax cost of debt: $0.25(5.6\%) + 0.75(13.2\%) = 1.40\% + 9.90\%$. It ignores the tax deductibility of interest.
- **C.** 11.56% weights debt and equity by book values, $200/1{,}100 = 18.18\%$ and $900/1{,}100 = 81.82\%$: $0.1818(4.2\%) + 0.8182(13.2\%) = 0.76\% + 10.80\%$. Book values do not reflect current market conditions; here the book value of equity is far above its market value, so book weights overstate the weight of equity, the more expensive source.

Key takeaway For the current cost of capital, weight each source by its market value (or by management's target weights) and use the after-tax cost of debt. Book values can differ sharply from market values, especially for equity.

Reading 25: Capital Structure. Notes: credguild.com/cfa/level-1/notes/corporate-finance/modigliani-miller/

Question 103 **Answer: B**

Treloar has the features of a mature company: slower growth, significant and stable cash flow and low business risk. Mature companies can support substantial debt, and lenders offer it widely, including unsecured debt, at a relatively low cost.

Why the other options are wrong

- **A.** Almost all-equity financing, sometimes with convertible debt or leasing, fits a start-up with low or negative cash flow, high business risk and little collateral.
- **C.** Conservative, secured debt fits a growth-stage company whose cash flow is rising but whose business risk is still higher than a mature company's.

Key takeaway Start-up: almost all equity; growth: some secured debt; mature: significant debt, including unsecured.

Reading 25: Capital Structure. Notes: credguild.com/cfa/level-1/notes/corporate-finance/modigliani-miller/

Question 104 **Answer: B**

MM Proposition II says the cost of equity rises linearly with the debt-to-equity ratio. With taxes, the leverage premium is scaled down by $(1 - t)$ because the debt tax shield absorbs part of the extra risk borne by shareholders.

$$r_e = r_0 + \frac{D}{E}(r_0 - r_d)(1 - t) = 10.5\% + 0.6(10.5\% - 6.0\%)(1 - 0.25)$$

$$= 10.5\% + 0.6(4.5\%)(0.75) = 10.5\% + 2.025\% = 12.525\% \approx 12.53\%$$

Why the other options are wrong

- **A.** 13.20% is the no-tax version of Proposition II; it omits the $(1 - t)$ factor.
- **C.** 11.77% uses the debt-to-total-capital ratio ($0.6/1.6 = 0.375$) instead of the debt-to-equity ratio of 0.6.

Key takeaway MM II with taxes: $r_e = r_0 + (D/E)(r_0 - r_d)(1 - t)$. The leverage term uses D/E; using D/V is a common error.

Reading 25: Capital Structure. Notes: credguild.com/cfa/level-1/notes/corporate-finance/modigliani-miller/

Question 105 **Answer: C**

Under the free cash flow hypothesis, debt disciplines managers. Committing cash to interest and principal payments reduces the free cash flow that managers could use for their own benefit, and it forces them to run the company efficiently so that those payments can be met. Greater financial leverage therefore tends to reduce the agency costs of equity.

Why the other options are wrong

- **A.** Pecking order theory ranks financing sources by how negative a signal they send under asymmetric information: internal funds first, then debt, then new external equity. It does not argue for borrowing to take cash away from managers.
- **B.** Debt signaling holds that taking on fixed payment obligations tells outside investors that management is confident about future cash flows. The director's concern is curbing managers' use of spare cash; she says nothing about what the borrowing would tell investors.

Key takeaway Free cash flow hypothesis: more debt leaves managers less free cash flow to misuse, which lowers the agency costs of equity. Pecking order: internal funds, then debt, then external equity. Signaling: new debt signals confidence, while new equity is often read as a sign of overvaluation.

Reading 25: Capital Structure. Notes: credguild.com/cfa/level-1/notes/corporate-finance/modigliani-miller/

Question 106 **Answer: A**

A business model explains how a firm provides its product, finds and serves customers, and makes a profit: who the customers are, what is offered, how and where it is delivered, and how it is priced. Detailed forecasts of revenue and expenses belong in a financial plan, not in the business model.

Why the other options are wrong

- **B.** Target customers and how they are acquired and kept are core parts of a business model.
- **C.** The assets and suppliers that matter to the firm are part of how the business model works.

Key takeaway Business model = who, what, how, where and how much; detailed financial forecasts belong to the financial plan.

Reading 26: Business Models. Notes: credguild.com/cfa/level-1/notes/corporate-finance/business-models/

Question 107 **Answer: B**

Bundling prices several complementary products together as one package, usually to make the overall offer more profitable. Here the laptop, the premium keyboard, the high-resolution display and the three-year support contract are all sold for one combined base price. This is different from add-on pricing, where the base laptop would be sold at a normal margin and the upgrades and support offered separately, after the purchase decision, at high margins.

Why the other options are wrong

- **A.** Value-based pricing sets the price according to the value customers perceive in the product. The decision described here is about how the items are sold: complementary items that were sold separately are combined into a single package price, which is bundling.
- **C.** Dynamic pricing charges different prices depending on the time of day or day of the week (peak and off-peak pricing). Nothing in the decision depends on timing.

Key takeaway Complementary extras included in one package price are bundling. Extras sold separately after the purchase decision are add-on pricing.

Reading 26: Business Models. Notes: credguild.com/cfa/level-1/notes/corporate-finance/business-models/

Question 108 **Answer: C**

Private label (contract) manufacturers make products that other companies sell under their own brand names, as store brands are. Fairfield makes the cereal and the supermarkets sell it under their brands, so Fairfield is a private label manufacturer.

Why the other options are wrong

- **A.** A value-added reseller resells complex equipment and adds installation, service, support or customization. Fairfield manufactures goods; it does not resell them with added services.
- **B.** In a licensing agreement, a company lets another company use its brand on that company's products for a fee. Here no brand is rented out: the supermarkets put their own brands on products Fairfield makes.

Key takeaway A firm that makes products for others to sell under their brands is a private label (contract) manufacturer. A firm that rents out its brand uses a licensing agreement.

Reading 26: Business Models. Notes: credguild.com/cfa/level-1/notes/corporate-finance/business-models/

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Financial Statement Analysis

Questions 109–162 · 12 readings

27 Introduction to Financial Statement Analysis

Question 109

An analyst converts a competitor's inventory figures to the same cost basis as her subject company, then calculates liquidity and profitability ratios and prepares common-size statements. In the financial statement analysis framework, this work is *best* described as:

A processing the data.

B analyzing and interpreting the data.

C gathering the data.

Question 110

An analyst is reading the notes that accompany a retailer's audited annual financial statements. Which of the following statements about those notes is *least* accurate? The notes:

A disclose contingencies, such as losses that could arise from pending claims.

B are covered by the independent auditor's examination.

C present management's own assessment of the year's operating performance and financial results.

Question 111

Ilse Brandt covers Corrigan Freight, a US public company. She wants management's own account of known trends and of the significant events and uncertainties that could affect Corrigan's liquidity, capital resources and results of operations. She is *most likely* to find this in:

A management's discussion and analysis (MD&A).

B the proxy statement.

C the notes to the financial statements.

Question 112

Priya Nandakumar is researching Corvell Biotech and wants information she can treat as objective. Which of the following sources should she be *least likely* to rely on for that purpose?

A Industry output statistics published by a government agency.

B A proxy statement that Corvell filed with the SEC.

C A press release issued by Corvell's investor relations team.

28 Analyzing Income Statements

Question 113

On November 15, Halden Yacht Services receives $24,000 in cash from a customer for a winter storage and maintenance package that Halden will provide from January through March. Halden has not yet performed any of the service. At November 30, the effect of this transaction on Halden's balance sheet is *best* described as:

A cash and retained earnings each increase by $24,000.

B cash and unearned revenue each increase by $24,000.

C accounts receivable and revenue each increase by $24,000.

Question 114

Three U.S. hardware retailers are identical except for their inventory cost-flow assumption: one uses FIFO, one uses LIFO and one uses weighted average cost. Over the past several years, both the unit costs they pay suppliers and the number of units they sell have climbed steadily. An analyst who ranks the three on reported gross profit margin, without adjusting for inventory accounting, would *most likely* find the lowest margin at the retailer using:

A LIFO.

B Weighted average cost.

C FIFO.

Question 115

During the current year, Brantley Industrial recorded a $14 million restructuring charge to close two of its warehouses. Its board also approved a formal plan to sell Brantley's marine-engine business, a separate major line of business with its own plants, management and financing that can be clearly separated from the rest of the company. The business meets the criteria to be classified as held for sale, and the sale is expected to close next year at a gain. Which statement about Brantley's income statement for the current year is *most accurate*?

A The marine-engine business's results are reported net of tax after income from continuing operations, and the prior-year income statement presented is restated to show them separately.

B The restructuring charge is reported net of tax below income from continuing operations.

C The expected gain on the sale of the marine-engine business is recognized in the current year, when the disposal plan is approved.

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Question 116

Ravensworth Holdings entered 2025 with 3,000,000 common shares. Its capital transactions during the year, listed from latest to earliest, were: a sale of 240,000 new common shares on 31 October; an issue of €15 million of 6% convertible bonds on 31 May, convertible into common shares at a conversion price of €10; and a 20% stock dividend distributed on 28 February. The number of shares Ravensworth should use for its 2025 *basic* EPS is:

A 3,540,000.

B 3,640,000.

C 5,140,000.

Question 117

An analyst reviews the following margins for Halvorsen Marine:

Halvorsen Marine — selected margins from common-size income statements

Margin (% of revenue)	Year 1	Year 2	Year 3
Gross profit margin	30%	32%	34%
Operating profit margin	21%	23%	25%
Pretax margin	19%	19%	19%
Net profit margin	14%	14%	14%

Halvorsen's net profit margin has stayed flat even though its gross profit margin has widened. Based only on these data, the *most likely* explanation is an increase, relative to revenue, in:

A selling, general and administrative expenses.

B income tax expense.

C nonoperating expenses such as interest.

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29 Analyzing Balance Sheets

Question 118

Norvale Biotech, which reports under IFRS, is developing a rapid diagnostic kit. Early in the year it spent €640,000 on laboratory research, and that work showed the kit to be technically feasible. Norvale intends to finish the kit, has the resources to do so, and has signed a supply agreement with a hospital network. For the next phase it expects the following costs:

- staff training: €72,000
- materials and direct labor: €415,000
- production overhead: €185,000
- general administrative overhead: €38,000

The total amount Norvale should expense under IFRS is *closest* to:

A €640,000.

B €712,000.

C €750,000.

Question 119

Which statement *best* describes how available-for-sale securities are accounted for under US GAAP after purchase?

A They are carried at amortized cost, and changes in market value are ignored.

B They are carried at fair value, and unrealized gains and losses are recognized in other comprehensive income.

C They are carried at fair value, and unrealized gains and losses are recognized in the income statement.

Question 120

In Veloria, companies record revenue in their financial statements when a sale is made. Montclair Tiles sells mainly on 60-day credit terms. Which Velorian tax rule would *most likely* cause Montclair to report a deferred tax liability?

A Revenue is taxed when the sale is made.

B Revenue is taxed when cash is collected from the customer.

C Revenue is exempt from tax.

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Question 121

Part of the most recent common-size balance sheet of Harrowgate Mills is shown below.

Harrowgate Mills — excerpt from common-size balance sheet (most recent year)

Item	% of total assets
Preferred stock	10%
Common stock	2%
Additional paid-in capital	23%

Which interpretation of these data is *most appropriate*?

A Preferred stock accounts for 10% of shareholders' equity.

B Shareholders' equity equals 35% of total assets.

C The amount received from issuing common stock equals 25% of total assets.

Question 122

The liabilities and equity section of Galloway Instruments' balance sheet is shown below.

Galloway Instruments — liabilities and equity

Item	Amount
Accounts payable	400
Accrued expenses	150
Short-term notes payable	300
Long-term debt	1,500
Total equity	2,650
Total liabilities and equity	5,000

Treating only interest-bearing obligations as debt, as is usual for solvency ratios, Galloway's debt ratio is *closest* to:

A 36%.

B 47%.

C 68%.

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30 Analyzing Statements of Cash Flows I

Question 123

Alvern Truck Works builds delivery trucks for sale. It sells 25 new trucks for cash to Ardwell Couriers, which will use them in its delivery business for about eight years. Both companies report under US GAAP. How will the cash that changes hands be classified in each company's statement of cash flows? Answer in the form: Alvern; Ardwell.

A Operating inflow; investing outflow.

B Operating inflow; operating outflow.

C Investing inflow; investing outflow.

Question 124

An analyst is rebuilding the operating section of Castellan Paper's statement of cash flows, which is prepared using the indirect method. Which of the following items recorded by Castellan during the year requires an addition to net income in arriving at cash flow from operating activities?

A A loss on the early retirement of its bonds.

B A gain on the sale of a delivery truck.

C A decrease in its deferred tax liability.

Question 125

Dmitri Volkov is deciding whether to present the operating section of a projected statement of cash flows using the direct or the indirect format. Which of the following statements is *most accurate*?

A Under the direct method, depreciation is added to cash collected from customers because it is a noncash expense.

B Under the indirect method, depreciation is added back to net income because it is a noncash expense.

C Under the indirect method, changes in accounts receivable need no adjustment because net income already reflects them.

Question 126

On December 31, Tarn Retail, which reports under IFRS, borrowed €45,000 on a 90-day bank note and used the cash to buy merchandise inventory. On the same day it issued €200,000 of seven-year bonds and used the proceeds to buy delivery vans. No interest was paid during the year. The combined effect of these transactions on Tarn's statement of cash flows for the year is that:

A cash flow from financing activities increases by €200,000.

B cash flow from operating activities decreases by €45,000.

C cash flow from operating activities is unchanged.

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Question 127

Under US GAAP and under IFRS, how may **interest paid** be classified in the statement of cash flows?

A US GAAP: CFO or CFF; IFRS: CFO.

B US GAAP: CFO; IFRS: CFO or CFF.

C US GAAP: CFF; IFRS: CFO or CFF.

31 Free Cash Flow

Question 128

An analyst reviews three years of results for Pinecrest Media:

Pinecrest Media — net income and cash flow from operations ($ millions)

Year	Net income	Cash flow from operations	Accounts receivable (year-end)
Year 1	42	45	60
Year 2	51	38	84
Year 3	63	31	117

Which conclusion is *most appropriate* based on these data?

A Earnings quality appears high, because net income has grown steadily in every year.

B The widening gap is expected and harmless, because growing firms always report operating cash flow above net income.

C Earnings quality may be deteriorating; the firm could be recognizing revenue too early or delaying expense recognition.

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Question 129

Amara Osei is valuing Kestrel Logistics, which reports under US GAAP (interest paid is included in operating activities). She collects the following data:

Kestrel Logistics — selected data for the year

Item	Amount ($)
Net cash provided by operating activities	4,600
Fixed capital investment (net)	950
Cash interest paid	300
Income before tax	5,000
Income tax expense	1,250
Net income	3,750

Kestrel's free cash flow to the firm (FCFF) is *closest* to:

A $3,875.

B $3,425.

C $3,025.

Question 130

Vasquez Dental Supply reports under US GAAP, so interest paid and income taxes paid are both included in its cash flow from operating activities. For the latest year, CFO was $7,800, cash interest paid was $600, and cash income taxes paid were $1,500. Vasquez's (cash flow) interest coverage ratio is *closest* to:

A 16.5.

B 14.0.

C 13.0.

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32 LIFO vs FIFO

Question 131

Brenvale Creamery makes aged cheese. Its costs for the year are shown below.

Brenvale Creamery: costs incurred during the year ($)

Cost	Amount
Milk and other direct materials	410,000
Direct labor	185,000
Fixed production overhead	260,000
Storage of cheese wheels during the aging stage of production	38,000
Normal spoilage during production	6,200
Spoilage caused by a refrigeration breakdown (abnormal)	29,000
Storage of packaged cheese awaiting delivery to customers	17,500

The cost that Brenvale should include in inventory is *closest* to:

A $928,200.

B $916,700.

C $899,200.

Question 132

Three companies each report that the net realizable value of their inventory is now above its original cost. Which company is *most likely* permitted to carry that inventory on its balance sheet at an amount above historical cost?

A Ridgeback Electronics, a US GAAP retailer of smartphones.

B Coldwater Timber, an IFRS producer of forest products that trade in an active market.

C Marigold Apparel, an IFRS reporter that wrote its clothing down to net realizable value last year.

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Question 133

Tolworth Hardware Supply reports under US GAAP and uses the LIFO method. For the year just ended it reported cost of goods sold of $4,815,000. Its inventory footnote shows a LIFO reserve of $612,000 at the beginning of the year and $538,000 at the end. Purchase costs fell during the year, and inventory quantities were unchanged. An analyst restates Tolworth's results to a FIFO basis to compare it with a peer that reports under IFRS. Tolworth's cost of goods sold on a FIFO basis is *closest* to:

A $4,889,000.

B $4,741,000.

C $4,277,000.

Question 134

An analyst suspects that Cordell Hardware, a LIFO user facing rising purchase costs, drew down old inventory layers this year to lift its reported profit. The *most* reliable evidence of such a LIFO liquidation is a:

A decrease in the LIFO reserve reported in the inventory footnote.

B rise in the gross profit margin.

C fall in inventory that is out of line with the change in sales.

Question 135

An analyst reviews the following data for Merrow Cycle Parts, whose industry peers have maintained steady inventory levels:

Merrow Cycle Parts — inventory data ($ thousands)

Item	Year 1	Year 2
Cost of goods sold	7,300	7,665
Average inventory	1,000	1,680
Finished goods (year-end)	610	975
Sales growth	4%	3%

Merrow's days of inventory on hand in Year 2, and the *most likely* interpretation, are:

A About 50 days; inventory is being managed more efficiently.

B About 80 days; inventory is being managed more efficiently.

C About 80 days; inventory may be slow-moving or obsolete.

33 Straight Line Depreciation

Question 136

Holloway Brands owns three trademarks, each with a finite useful life. One was bought from a competitor, one was recognized when Holloway acquired Pinecrest Foods, and one was created by Holloway's own marketing department. Which trademark is *least likely* to be carried on Holloway's balance sheet at cost less accumulated amortization?

A The trademark bought from a competitor.

B The trademark recognized in the acquisition of Pinecrest Foods.

C The trademark created by Holloway's own marketing department.

Question 137

Two otherwise identical companies each spend the same amount on a long-lived asset in Year 1. Brackley Tools capitalizes the outlay and depreciates it; Ostrander Tools expenses it immediately. For the years that follow Year 1, Brackley, compared with Ostrander, will *most likely* report:

A Lower net income and higher return on assets.

B Lower net income and lower return on assets.

C Higher net income and lower return on assets.

Question 138

Tamarind Beverages reports under US GAAP. It owns a beverage brand that it acquired several years ago, and management has concluded that the brand has an indefinite useful life. The annual impairment review of the brand produces the following estimates.

Tamarind Beverages: impairment review of an indefinite-lived brand

Item	$ millions
Carrying amount	64
Undiscounted expected future cash flows	90
Present value of expected future cash flows (value in use)	58
Fair value	52
Costs to sell	3

The impairment loss that Tamarind recognizes on the brand is *closest* to:

A $12 million.

B $6 million.

C $0.

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Question 139

Harrowgate Freight uses straight-line depreciation with negligible salvage values. Selected data from its PP&E note are shown below.

Harrowgate Freight — PP&E note, latest fiscal year (USD millions)

Item	Amount
Gross PP&E, end of year	840
Accumulated depreciation, end of year	336
Depreciation expense for the year	48

The estimated remaining useful life of Harrowgate's PP&E is *closest* to:

A 7.0 years.

B 10.5 years.

C 17.5 years.

34 Finance Lease vs Operating Lease

Question 140

Which of the following is the *least likely* reason for Northgate Printing to lease a new press rather than purchase it?

A To lower its financing cost.

B To reduce the cash it pays out at the start.

C To share in any increase in the press's value.

Question 141

Aerolinea Sur leases a regional jet from Skyward Capital under an arrangement classified as an operating lease. The jet itself is reported as a physical asset on the balance sheet of:

A neither the lessor nor the lessee.

B the lessee.

C the lessor.

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Question 142

Marrick Semiconductor grants employee stock options on the terms below and expects all of them to vest.

Marrick Semiconductor — employee stock option grant (1 January)

Item	Value
Options granted	60,000
Share price on grant date	$38.00
Exercise price	$40.00
Fair value per option on grant date (option-pricing model)	$7.50
Vesting period	4 years (all options vest together)

The compensation expense Marrick recognizes in the first year is *closest* to:

A $450,000.

B $112,500.

C $0.

Question 143

Which of the following items is *least likely* to be a required disclosure about Tavener Systems' share-based compensation plans?

A How the fair value of the awards at the grant date was determined.

B The effect of share-based payment transactions on the company's balance sheet.

C Tavener's share price at the reporting date.

35 Deferred Tax Liability

Question 144

When pretax income reported in the financial statements differs from taxable income because of a temporary difference, the *most likely* consequence is:

A the recognition of a deferred tax asset or deferred tax liability.

B a gain or loss recognized in other comprehensive income.

C a permanent gap between the firm's effective and statutory tax rates.

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Question 145

Which of the following is *most likely* to cause a deferred tax asset to be created?

A Accelerated tax depreciation.

B Unearned revenue.

C A decrease in the enacted tax rate.

Question 146

Lochmere Outfitters has built up large tax loss carryforwards. Its deferred tax balances at the start of the year, measured at the 24% income tax rate then enacted, are shown below.

Lochmere Outfitters: deferred tax balances at the start of the year (measured at 24%)

Deferred tax item	Balance ($ thousands)
Deferred tax asset (tax loss carryforwards and warranty provisions)	360
Deferred tax liability (accelerated tax depreciation)	150

During the year the legislature enacts an increase in the income tax rate to 28%, applying from next year onward, when all of these differences are expected to reverse. No temporary differences arise or reverse during the year. As a result of the rate change, Lochmere's income tax expense for the year will:

A increase by $25,000.

B remain unchanged.

C decrease by $35,000.

Question 147

An analyst reclassifies a company's deferred tax liability from liabilities to equity. Which of the following ratios is *least likely* to be affected by this reclassification?

A Return on assets.

B Debt-to-equity ratio.

C Return on equity.

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Question 148

An analyst reviewing Kittredge Pharma notes that its effective tax rate is 6 percentage points below its statutory rate. Almost all of the gap comes from a tax holiday granted for a new plant in Malaysia. This reconciliation item is *most likely*:

A continuous in nature, so the date on which the holiday ends does not matter.

B sporadic in nature, but its effect is normally cancelled out by higher home-country tax when the profits are repatriated.

C sporadic in nature, and the analyst should find out when the holiday ends and whether taxes will become payable at that point.

36 Financial Reporting Quality

Question 149

An analyst concludes that Fenwick Brewing's financial reports are of high quality. Fenwick's reported earnings *could* still be:

A of low quality, because they are not sustainable.

B smoothed through management's choice of estimates.

C overstated because asset impairments were recognized late.

Question 150

A review of an accounting scandal concludes that the company's managers had both the motivation and the opportunity to misreport. Which third factor typically completes the set of conditions behind low-quality financial reporting?

A Weak internal controls.

B Rationalization of the actions.

C Pressure to beat earnings expectations.

Question 151

The management of Orsini Fabrication wants to use its accounting discretion to raise operating income in the coming period. Which of the following actions is it *most likely* to take?

A Raise the estimated residual values of its plant and equipment.

B Shorten the estimated useful lives of its plant and equipment.

C Revalue its plant and equipment upward from depreciated cost to fair value.

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Question 152

The management of Pellworth Chemicals is worried that the company will breach a bank-loan covenant that sets a minimum interest coverage ratio. If management manipulates its financial reporting to avoid the breach, it is *most likely* to:

A overstate earnings.

B understate assets.

C capitalize leases.

Question 153

Which of the following observations about Sandhurst Industrial, a diversified manufacturer, is *most likely* to signal that management is manipulating how its results are perceived?

A Sandhurst adopted a new lease accounting standard in the year it became mandatory for all companies.

B Sandhurst's ratio of operating cash flow to net income has stayed between 1.1 and 1.3 for five years.

C Sandhurst has reported large restructuring charges labeled nonrecurring in five of the last six years.

37 Dupont Analysis

Question 154

Leon Varga places this year's gross profit margin, inventory turnover, and debt-to-equity ratio for Pallister Grocers next to the same ratios, for the same year, of four rival supermarket chains. Varga's approach is best described as:

A cross-sectional analysis.

B time-series analysis.

C common-size analysis.

Question 155

An analyst notes that the inventory turnover of Fenmore Outdoor dropped sharply this year, although its sales and cost of goods sold were roughly unchanged. Which explanation is *most* consistent with the decline?

A At the start of the year, Fenmore wrote a large amount of obsolete stock down to net realizable value.

B A fault in a new ordering system placed duplicate orders with suppliers and built up surplus stock.

C Fenmore switched to a just-in-time system in which suppliers deliver goods only as they are needed.

Question 156

An analyst wants to assess how well a manufacturer converts its sales into operating profits. Which of the following ratios is *least likely* to be one of the operating profitability ratios she would use?

A Gross profit / net sales.

B Net sales / total assets.

C Net income / net sales.

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Question 157

A company has positive net income and positive shareholders' equity. Holding its net profit margin and its equity multiplier constant, if the company improves its total asset turnover, its return on equity will:

A decrease.

B increase.

C increase, decrease, or stay the same.

Question 158

Carraway Outfitters reported sales of $200 million for 20X5 and expects sales to grow by 9.5% in 20X6. Cost of goods sold is expected to stay at 50% of sales, and management targets an average of 50 days of inventory on hand in 20X6. Using a 365-day year, Carraway's forecast average inventory for 20X6 is *closest* to:

A $13.70 million.

B $15.00 million.

C $30.00 million.

38 Pro Forma Financial Statements

Question 159

An analyst building sales-based pro forma financial statements will *most likely* carry out which of these tasks first?

A Building the pro forma cash flow statement.

B Estimating SG&A expenses.

C Forecasting capital expenditures and net PP&E.

Question 160

Since finishing her earnings forecast for Brenton Mining, Clara Voss has seen the company announce a new product line and a reorganization of its divisions. She had anticipated some of these developments in her forecast but not others. Nonetheless, she is unwilling to revise her forecast. Voss is *most likely* displaying:

A confirmation bias.

B conservatism bias.

C representativeness bias.

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Question 161

Sorrel Audio sells 2,000 speakers a year at $80 each; unit COGS is $50 and SG&A is a fixed $30,000. Next year the input cost per speaker will rise by $4. Sorrel plans to raise its selling price by exactly $4 and expects unit sales to be unaffected. Sorrel's gross margin next year is *closest* to:

A 35.7%.

B 37.5%.

C 40.5%.

Question 162

When choosing an explicit forecast horizon for a company whose earnings swing sharply with the economy, an analyst should *most appropriately* extend the forecast:

A over one year only.

B far enough to include the middle of the business cycle.

C far enough to include two complete business cycles.

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FINANCIAL STATEMENT ANALYSIS

Answers and explanations

Answer key: 109. A · 110. C · 111. A · 112. C · 113. B · 114. A · 115. A · 116. B · 117. C · 118. C · 119. B · 120. B · 121. C · 122. A · 123. A · 124. A · 125. B · 126. B · 127. B · 128. C · 129. A · 130. A · 131. C · 132. B · 133. A · 134. A · 135. C · 136. C · 137. B · 138. A · 139. B · 140. C · 141. C · 142. B · 143. C · 144. A · 145. B · 146. C · 147. A · 148. C · 149. A · 150. B · 151. A · 152. A · 153. C · 154. A · 155. B · 156. B · 157. B · 158. B · 159. B · 160. B · 161. A · 162. B

Question 109 **Answer: A**

Adjusting the reported statements where appropriate, calculating ratios, and preparing exhibits such as graphs and common-size statements are the activities of step 3, process the data. No conclusion has yet been drawn from the ratios, so the analyst has not reached the analysis-and-interpretation step.

The six steps:

1. State the objective and context: questions to answer, output format, time and resources.
2. Gather data: statements, industry and economic data, discussions with management, suppliers and customers, site visits.
3. Process the data: adjustments, ratios, statistical work, exhibits such as graphs and common-size statements.
4. Analyze and interpret the data: answer the step-1 questions and decide what the evidence supports.
5. Report the conclusions or recommendations: communicate to the audience in line with the Code and Standards.
6. Update the analysis: repeat periodically and revise conclusions as needed.

The analyst's work (adjustment, ratios, common-size statements) fits step 3.

Why the other options are wrong

- **B.** Analyzing and interpreting (step 4) means using the processed figures to answer the questions posed in step 1 and deciding what conclusions or recommendations they support. The analyst is still preparing the figures.
- **C.** Gathering data (step 2) is acquiring the statements and other industry and economic information and asking questions of management, suppliers and customers. It comes before any adjustment or ratio work.

Key takeaway Adjusting, calculating and building exhibits is processing the data. Using the results to answer the questions is analyzing and interpreting the data.

Reading 27: Introduction to Financial Statement Analysis. Notes: credguild.com/cfa/level-1/notes/financial-statement-analysis/introduction-to-financial-statement-analysis/

Question 110 **Answer: C**

Management's own evaluation of results appears in management's commentary, also called management's discussion and analysis (MD&A), which is a separate section of the annual report. The notes (footnotes) explain the accounting methods, assumptions and estimates used and give detail on items such as contingencies, acquisitions and disposals.

Check each statement against what footnotes contain:

1. Contingent losses are disclosed in the notes (accurate).
2. The notes are audited with the statements (accurate).
3. Management's assessment of performance belongs in management's commentary, so this statement is the least accurate.

Why the other options are wrong

- **A.** This is accurate. Contingencies and commitments, such as possible losses from litigation, are standard footnote disclosures.
- **B.** This is accurate. Footnotes are an integral part of the financial statements and are audited along with the primary statements.

Key takeaway Footnotes cover accounting methods, estimates and supporting detail, and they are audited. Management's narrative on results and outlook appears in management commentary (MD&A), which may be unaudited.

Reading 27: Introduction to Financial Statement Analysis. Notes: credguild.com/cfa/level-1/notes/financial-statement-analysis/introduction-to-financial-statement-analysis/

Question 111 **Answer: A**

For US public companies, the SEC requires management's discussion and analysis to discuss trends and to identify significant events and uncertainties that affect liquidity, capital resources and results of operations. It is management's own commentary on the business, which is what Brandt is looking for. Parts of it may be unaudited.

Why the other options are wrong

- **B.** The proxy statement is sent to shareholders when a vote is needed. It covers board elections and qualifications, compensation, management qualifications and stock option issuance, not the discussion of trends and uncertainties.
- **C.** The footnotes give the detail behind the statements: the basis of presentation, accounting methods, assumptions and estimates, contingencies, acquisitions and similar items. They do not carry management's narrative on trends and uncertainties.

Key takeaway Management's view of trends, significant events and uncertainties is in MD&A; accounting methods and estimates are in the notes; votes, board elections and compensation are in the proxy statement.

Reading 27: Introduction to Financial Statement Analysis. Notes: credguild.com/cfa/level-1/notes/financial-statement-analysis/introduction-to-financial-statement-analysis/

Question 112 **Answer: C**

Press releases are written by the company and are unlikely to have been audited, so they are the least objective of the three. Government statistics are public third-party data, and a proxy statement is a regulated filing with the SEC. For objective context, an analyst compares the firm with its competitors and studies economy-wide and sector conditions, using government agencies, trade journals and statistical reporting services.

Why the other options are wrong

- **A.** Government agency statistics on the economy and industry are public third-party sources. Along with trade journals and statistical reporting services, analysts are expected to use them when comparing a company with its industry and competitors.

- **B.** Proxy statements are filed with the SEC and are a good source on board elections and qualifications, executive compensation, management qualifications and stock option issuance.

Key takeaway Issuer-provided material (press releases, earnings calls, presentations) is unlikely to have been audited, so cross-check it against filings and independent data. SEC filings such as proxy statements are regulated disclosures.

Reading 27: Introduction to Financial Statement Analysis. Notes: credguild.com/cfa/level-1/notes/financial-statement-analysis/introduction-to-financial-statement-analysis/

Question 113 **Answer: B**

Revenue is recognized when it is earned, that is, as the promised service is provided. Cash received before any service is delivered creates a liability, unearned (deferred) revenue, because Halden still owes the customer the service. The asset cash rises by $24,000 and the liability rises by the same amount; no revenue, and therefore no retained earnings, is recognized yet.

Why the other options are wrong

- **A.** This treats the prepayment as revenue that raises net income and retained earnings. No service has been performed, so no revenue has been earned by November 30.
- **C.** The customer has already paid, so there is no receivable, and revenue is not recognized before the service is provided.

Key takeaway Cash received in advance is a liability, unearned revenue. It becomes revenue only as the goods or services are delivered.

Reading 28: Analyzing Income Statements. Notes: credguild.com/cfa/level-1/notes/financial-statement-analysis/analyzing-income-statements/

Question 114 **Answer: A**

With rising purchase prices, LIFO charges the most recent, and therefore highest, costs to cost of goods sold. Revenue is the same whatever cost-flow method is used, so the higher COGS under LIFO produces the lowest gross profit (and net profit) margins.

Why the other options are wrong

- **B.** Weighted average cost blends older, cheaper units with newer, dearer ones, so its COGS and margins fall between those under FIFO and LIFO.
- **C.** FIFO charges the oldest, cheapest costs to COGS when prices are rising, so FIFO firms report the lowest COGS and the highest margins.

Key takeaway With rising prices, FIFO gives the lowest COGS and the highest margins, LIFO the highest COGS and the lowest margins, and average cost falls in between. Sales are unaffected by the choice.

Reading 28: Analyzing Income Statements. Notes: credguild.com/cfa/level-1/notes/financial-statement-analysis/analyzing-income-statements/

Question 115 **Answer: A**

The marine-engine business is a separate major line of business, physically and operationally distinct, and it is held for sale under a formal disposal plan. It therefore qualifies as a discontinued operation. Its income or loss is reported separately, net of tax, after income from continuing operations, and the prior-period income statements presented are restated so that the discontinued business is shown separately in every year.

Placement of the two items:

Item	Where it is reported	Tax presentation
Restructuring charge (an unusual or infrequent item)	Within income from continuing operations	Pre-tax
Marine-engine business (discontinued operation)	After income from continuing operations	Net of tax

The measurement date is the date the formal plan was approved; the period until the sale closes is the phaseout period. Had a loss on the sale been expected, the held-for-sale assets would be written down at once to fair value less costs to sell. Operating results of the phaseout period are recognized as they occur, and future operating losses are not accrued in advance. An expected gain is not recognized until the sale is completed.

Why the other options are wrong

- **B.** A restructuring charge is an unusual or infrequent item, so it is reported before tax, within income from continuing operations. Only discontinued operations are shown net of tax below that line.
- **C.** An expected gain on disposal cannot be recognized until the sale is actually completed. Only an expected loss on disposal is recognized early, as a write-down of the held-for-sale assets to fair value less costs to sell. Operating losses of the phaseout period are not accrued in advance either; they are recognized as incurred.

Key takeaway Unusual or infrequent items: pre-tax, inside continuing operations. Discontinued operations: net of tax, below continuing operations, with prior periods restated. Analysts usually exclude discontinued operations when forecasting earnings.

Reading 28: Analyzing Income Statements. Notes: credguild.com/cfa/level-1/notes/financial-statement-analysis/analyzing-income-statements/

Question 116 **Answer: B**

Basic EPS ignores potential shares from convertible securities, so the convertible bonds are not counted. The stock dividend is applied retroactively to the opening shares, and the new shares sold on 31 October are weighted for the remaining two months.

Opening shares restated: $3{,}000{,}000 \times 1.20 = 3{,}600{,}000$ (all year).

New shares: $240{,}000 \times \frac{2}{12} = 40{,}000$.

$$\text{WASO} = 3{,}600{,}000 + 40{,}000 = 3{,}640{,}000$$

(Monthly form: $[3{,}000{,}000(12) + 600{,}000(12) + 240{,}000(2)]/12 = 43{,}680{,}000/12 = 3{,}640{,}000$.) The €15 million of convertible bonds would convert into 1,500,000 shares, which matters only for diluted EPS.

Why the other options are wrong

- **A.** 3,540,000 treats the 600,000 dividend shares as outstanding only from 28 February (3,000,000 × 2/12 + 3,600,000 × 10/12 + 40,000). A stock dividend is applied retroactively to the start of the year.
- **C.** 5,140,000 adds the 1,500,000 shares issuable on conversion of the convertible bonds (€15,000,000/€10). Potential shares from convertibles are excluded from basic EPS.

Key takeaway Basic EPS denominator excludes convertibles; stock dividends are retroactive; new issues are time-weighted.

Reading 28: Analyzing Income Statements. Notes: credguild.com/cfa/level-1/notes/financial-statement-analysis/analyzing-income-statements/

Question 117 **Answer: C**

The gap between operating margin and pretax margin measures net nonoperating expense, chiefly interest, as a share of revenue. That gap widens from 2% to 6% of revenue and absorbs the whole 4-point gain in operating margin, so pretax and net margins stay flat.

Each cost layer as % of revenue:

Layer	Formula	Yr 1	Yr 2	Yr 3
COGS	100% − gross margin	70%	68%	66%
Operating expenses	gross − operating margin	9%	9%	9%
Nonoperating expense	operating − pretax margin	2%	4%	6%
Income tax	pretax − net margin	5%	5%	5%

Effective tax rate $= 5/19 \approx 26.3\%$ in every year.

Only the nonoperating layer grows (+4 points), offsetting the +4-point improvement in gross (and operating) margin.

Why the other options are wrong

- **A.** Operating expenses below gross profit (the gross-minus-operating-margin gap) are a constant 9% of revenue in all three years, so the operating margin rises one-for-one with the gross margin.
- **B.** The pretax-minus-net-margin gap is a constant 5% of revenue, and the effective tax rate is unchanged at about 26.3% of pretax income. Taxes do not explain the flat net margin.

Key takeaway Subtract adjacent margins to isolate each cost layer. Gross minus operating margin gives operating expenses; operating minus pretax margin gives nonoperating items; pretax minus net margin gives taxes.

Reading 28: Analyzing Income Statements. Notes: credguild.com/cfa/level-1/notes/financial-statement-analysis/analyzing-income-statements/

Question 118 **Answer: C**

Under IFRS, costs of the research phase are expensed, while development-phase costs are capitalized once the project is technically feasible, a market exists, and the firm has the intention and resources to complete and sell the product. All of these conditions are met here. Training costs and administrative overhead are expensed whenever they are incurred, even during development; materials, direct labor and production overhead of the development phase are capitalized.

Classify each cost:

Cost	Phase	Treatment
Laboratory research €640,000	Research	Expense
Staff training €72,000	Any	Expense
Administrative overhead €38,000	Any	Expense
Materials and direct labor €415,000	Development	Capitalize
Production overhead €185,000	Development	Capitalize

$$\text{Expensed} = 640{,}000 + 72{,}000 + 38{,}000 = €750{,}000$$

Capitalized development cost $= 415{,}000 + 185{,}000 = €600{,}000$. (Under US GAAP all €1,350,000 would be expensed.)

Why the other options are wrong

- **A.** €640,000 expenses only the research-phase costs and wrongly capitalizes the training and administrative overhead, which must be expensed as incurred.
- **B.** €712,000 correctly expenses research and training but forgets that general administrative overhead is also expensed as incurred.

Key takeaway Research costs are expensed. Once the development criteria are met, materials, direct labor and production overhead are capitalized. Training, administrative overhead, advertising, start-up, relocation and termination costs are always expensed.

Reading 29: Analyzing Balance Sheets. Notes: credguild.com/cfa/level-1/notes/financial-statement-analysis/analyzing-balance-sheets/

Question 119 **Answer: B**

Available-for-sale securities are reported at fair value on the balance sheet, but their unrealized gains and losses bypass the income statement and are reported in other comprehensive income, within shareholders' equity. Interest, dividends and realized gains and losses still go to the income statement.

Why the other options are wrong

- **A.** Amortized cost with market value changes ignored describes held-to-maturity securities.
- **C.** Fair value with unrealized gains and losses in the income statement describes trading securities.

Key takeaway AFS: fair value on the balance sheet, unrealized gains/losses in OCI (the IFRS counterpart is FVOCI).

Reading 29: Analyzing Balance Sheets. Notes: credguild.com/cfa/level-1/notes/financial-statement-analysis/analyzing-balance-sheets/

Question 120 **Answer: B**

If revenue is taxed only on collection, credit sales appear in the income statement before they are taxable. Income tax expense in the financial statements then exceeds taxes currently payable, and the tax due when the cash arrives is recorded as a deferred tax liability. This is a temporary timing difference that reverses on collection.

Why the other options are wrong

- **A.** Taxing revenue at the point of sale matches the accounting treatment, so no timing difference and no deferred tax arises.
- **C.** Revenue that is never taxable creates a permanent difference. Deferred taxes arise only from temporary timing differences.

Key takeaway DTL: revenue in the books before it is taxed (or expense deducted for tax before it is booked). Permanent differences never create deferred taxes.

Reading 29: Analyzing Balance Sheets. Notes: credguild.com/cfa/level-1/notes/financial-statement-analysis/analyzing-balance-sheets/

Question 121 **Answer: C**

A common-size balance sheet states each item as a percentage of total assets. Capital raised by issuing common shares is recorded partly as common stock (at par value) and partly as additional paid-in capital (the excess over par), so together they show that common share proceeds are $2\% + 23\% = 25\%$ of total assets.

Common-share proceeds $= \text{common stock} + \text{additional paid-in capital} = 2\% + 23\% = 25\%$ of total assets.

Why the other options are wrong

- **A.** The 10% is a percentage of total assets. As a share of shareholders' equity, preferred stock would be larger than 10%.
- **B.** Adding the three items (35%) leaves out other parts of equity, such as retained earnings and accumulated OCI, so total equity is very likely larger than 35% of assets.

Key takeaway Common stock (par) + additional paid-in capital = contributed capital from common shares. Every common-size balance sheet percentage is relative to total assets.

Reading 29: Analyzing Balance Sheets. Notes: credguild.com/cfa/level-1/notes/financial-statement-analysis/analyzing-balance-sheets/

Question 122 **Answer: A**

The debt ratio divides total debt by total assets. For solvency ratios, debt means interest-bearing obligations (here the short-term notes payable and the long-term debt), so accounts payable and accrued expenses are excluded. Total assets equal total liabilities and equity of 5,000.

Total debt (interest-bearing) $= 300 + 1{,}500 = 1{,}800$

$$\text{debt ratio} = \frac{\text{total debt}}{\text{total assets}} = \frac{1{,}800}{5{,}000} = 36\%$$

Why the other options are wrong

- **B.** 47% treats every liability as debt, including non-interest-bearing accounts payable and accrued expenses: $2{,}350/5{,}000$. Some data services define the debt ratio as total liabilities to total assets, but the question measures debt as interest-bearing obligations only, so payables and accruals are left out.
- **C.** 68% is the total debt-to-equity ratio $(1{,}800/2{,}650)$, which uses equity rather than total assets as the denominator.

Key takeaway Solvency ratios use interest-bearing debt; the financial leverage ratio (assets/equity) is the one that captures all liabilities.

Reading 29: Analyzing Balance Sheets. Notes: credguild.com/cfa/level-1/notes/financial-statement-analysis/analyzing-balance-sheets/

Question 123 **Answer: A**

Cash flows are classified by what the transaction means for the company that reports it. Selling trucks is Alvern's ordinary business: the trucks are its inventory, the sale produces revenue and cost of goods sold, and the cash is collected from a customer, so it is an operating inflow. For Ardwell the trucks are long-term assets

bought for use over several years, so the payment is an investing outflow. One transaction can therefore fall in different sections of the two companies' statements.

- Alvern: trucks held for sale are inventory. Cash received from customers is part of cash flow from operations (CFO).
- Ardwell: trucks bought for use are property, plant, and equipment, a noncurrent asset. Purchases of long-term assets belong in cash flow from investing activities (CFI). Ardwell will later depreciate the trucks, which reduces net income but is a noncash expense.

Why the other options are wrong

- **B.** This treats Ardwell's purchase as an operating payment. Buying a long-term asset for use over several years is an investing activity; only Alvern, for which the trucks are inventory, reports an operating cash flow.
- **C.** This treats Alvern's sale as the disposal of a long-term asset. Trucks that Alvern builds in order to sell them are inventory, not PP&E, so the proceeds are cash collected from customers, an operating inflow.

Key takeaway Classify a cash flow by its role for the reporting company. The sale of inventory is operating for the seller, while the same asset bought for long-term use is an investing outflow for the buyer.

Reading 30: Analyzing Statements of Cash Flows I. Notes: credguild.com/cfa/level-1/notes/financial-statement-analysis/analyzing-statements-of-cash-flows-i/

Question 124 **Answer: A**

The indirect method starts with net income and removes items that affected income without a matching operating cash flow. A loss on retiring debt early reduced net income, but the cash paid to retire the bonds is a financing outflow, so the loss is added back. Otherwise operating cash flow would be reduced by an amount that belongs in financing activities.

Why the other options are wrong

- **B.** A gain on the sale of a truck raised net income, but the full sale proceeds are an investing inflow. The gain is subtracted so that it is not counted in operating cash flow as well.
- **C.** A decrease in a deferred tax liability means income tax expense was lower than the tax payable for the period, so net income overstates the cash left after taxes. The decrease is subtracted from net income.

Key takeaway Indirect method: add back losses and subtract gains that arise from investing or financing transactions, such as asset sales and debt retirement. Add increases and subtract decreases in deferred tax liabilities.

Reading 30: Analyzing Statements of Cash Flows I. Notes: credguild.com/cfa/level-1/notes/financial-statement-analysis/analyzing-statements-of-cash-flows-i/

Question 125 **Answer: B**

The indirect method begins with net income, and net income has been reduced by both cash and noncash expenses. Depreciation reduced net income without any cash leaving the firm, so it is added back when reconciling net income to CFO.

Why the other options are wrong

- **A.** The direct method ignores depreciation entirely. It lists cash receipts and payments, and depreciation is neither.

- **C.** Net income includes sales rather than cash collections. The change in receivables is exactly the gap between the two, so it must be adjusted for.

Key takeaway Depreciation matters only under the indirect method, where it is added back to net income. It never appears as a cash item under the direct method.

Reading 30: Analyzing Statements of Cash Flows I. Notes: credguild.com/cfa/level-1/notes/financial-statement-analysis/analyzing-statements-of-cash-flows-i/

Question 126 **Answer: B**

Classification follows the nature of each cash flow, not the maturity of the borrowing. Buying inventory is part of day-to-day operations, so the €45,000 paid is an operating outflow. Borrowing, whether on a short-term note or long-term bonds, is a financing inflow, and buying vans is an investing outflow.

CFO: inventory purchase −€45,000.

CFI: vans −€200,000.

CFF: note +€45,000 and bonds +€200,000, a total of +€245,000.

The net change in cash is zero.

Why the other options are wrong

- **A.** Financing cash flow rises by €245,000, because the 90-day note is also borrowing and belongs in financing activities together with the bonds.
- **C.** The cash used to buy inventory is an operating outflow, so operating cash flow falls by €45,000 even though the purchase was funded by a bank note.

Key takeaway Borrowing of any maturity is financing; paying for inventory is operating; buying long-term assets is investing. Match each leg of a transaction to its own section.

Reading 30: Analyzing Statements of Cash Flows I. Notes: credguild.com/cfa/level-1/notes/financial-statement-analysis/analyzing-statements-of-cash-flows-i/

Question 127 **Answer: B**

US GAAP requires interest paid to be reported as an operating cash flow. IFRS allows interest paid to be classified as either an operating or a financing cash flow. These are the IAS 7 choices the exam applies; IFRS 18, effective for annual periods beginning on or after 1 January 2027, removes the choice for companies whose main business is not investing or financing and puts their interest paid in financing.

Why the other options are wrong

- **A.** This reverses the two frameworks. US GAAP has no choice for interest paid; IFRS has the choice.
- **C.** The IFRS part is right, but US GAAP classifies interest paid as an operating outflow.

Key takeaway Interest paid is CFO under US GAAP and CFO or CFF under IFRS. Interest received is CFO under US GAAP and CFO or CFI under IFRS.

Reading 30: Analyzing Statements of Cash Flows I. Notes: credguild.com/cfa/level-1/notes/financial-statement-analysis/analyzing-statements-of-cash-flows-i/

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Question 128 **Answer: C**

A stable relationship between net income and operating cash flow indicates good earnings quality. Here net income rises from 42 to 63 while CFO falls from 45 to 31, and receivables nearly double; earnings that increasingly exceed operating cash flow can signal aggressive or even improper accounting, such as recognizing revenue too early or delaying the recognition of expenses. The build-up in receivables points to revenue being booked well ahead of cash collection.

Net income minus CFO: Year 1 $= 42 - 45 = -3$; Year 2 $= 51 - 38 = 13$; Year 3 $= 63 - 31 = 32$.

Receivables grow from 60 to 117 (+95%) while net income grows 50%, so revenue is being booked faster than it is collected.

Why the other options are wrong

- **A.** Steady growth in reported income says little about quality when operating cash flow is moving the opposite way; the diverging trend is the warning sign.
- **B.** Growing firms often have operating cash flow below net income because working capital expands, so the direction of the statement is wrong. A persistent, widening gap also calls for investigation.

Key takeaway Compare net income with CFO over several years: a persistent, widening excess of earnings over CFO is a red flag for earnings quality.

Reading 31: Analyzing Statements of Cash Flows II. Notes: credguild.com/cfa/level-1/notes/financial-statement-analysis/free-cash-flow/

Question 129 **Answer: A**

FCFF starting from CFO adds back after-tax interest (because interest is a payment to debtholders, who are capital providers) and deducts fixed capital investment. The tax rate is inferred from the income statement.

Tax rate $t = 1{,}250/5{,}000 = 25\%$

$$FCFF = CFO + Int(1 - t) - FC_{INV}$$

$$FCFF = 4{,}600 + 300(1 - 0.25) - 950 = 4{,}600 + 225 - 950 = 3{,}875$$

Why the other options are wrong

- **B.** \$3,425 subtracts the after-tax interest ($4{,}600 - 225 - 950$) instead of adding it back. Interest paid is available to debtholders and belongs in FCFF.
- **C.** \$3,025 starts from net income ($3{,}750 + 225 - 950$) and omits noncash charges and working capital investment; with net income as the base those adjustments are required, which is why the CFO-based formula is used when CFO is given.

Key takeaway $\text{FCFF} = \text{CFO} + \text{Int}(1 - t) - \text{FCInv}$. If t is not given, compute it as $\text{tax expense}/\text{pretax income}$.

Reading 31: Analyzing Statements of Cash Flows II. Notes: credguild.com/cfa/level-1/notes/financial-statement-analysis/free-cash-flow/

Question 130 **Answer: A**

The cash flow interest coverage ratio measures the firm's ability to meet its interest obligations. Because CFO has already been reduced by interest and taxes paid, both are added back to obtain the cash available before those payments, which is then divided by interest paid.

$$\text{Interest coverage} = \frac{CFO + \text{interest paid} + \text{taxes paid}}{\text{interest paid}} = \frac{7{,}800 + 600 + 1{,}500}{600} = \frac{9{,}900}{600} = 16.5$$

Why the other options are wrong

- **B.** 14.0 adds back interest paid but not taxes paid: $(7{,}800 + 600)/600$. Taxes paid must also be added back.
- **C.** 13.0 simply divides CFO by interest paid $(7{,}800/600)$ without adding back the interest and taxes already deducted in CFO.

Key takeaway Interest coverage (cash basis) adds back both interest and taxes paid. If an IFRS firm reports interest paid in financing activities, no interest add-back is needed.

Reading 31: Analyzing Statements of Cash Flows II. Notes: credguild.com/cfa/level-1/notes/financial-statement-analysis/free-cash-flow/

Question 131 **Answer: C**

Inventory cost includes the costs of purchase and conversion needed to bring the goods to their present location and condition: materials, direct labor, production overhead, normal spoilage and storage that is a necessary part of production, such as aging. Abnormal waste and storage of finished goods waiting for delivery are expensed as incurred.

$$410{,}000 + 185{,}000 + 260{,}000 + 38{,}000 + 6{,}200 = \$899{,}200$$

Expensed: abnormal spoilage $29,000 and storage of packaged cheese $17,500.

Why the other options are wrong

- **A.** $928,200 also capitalizes the $29,000 of abnormal spoilage from the refrigeration breakdown, $899{,}200 + 29{,}000$. Abnormal waste is expensed when it occurs.
- **B.** $916,700 also capitalizes the $17,500 of storage after production, $899{,}200 + 17{,}500$. Storage is part of inventory cost only when it is required in the production process.

Key takeaway Put purchase and conversion costs, normal waste and production-related storage into inventory; expense abnormal waste, post-production storage, administrative overhead and selling costs.

Reading 32: Analysis of Inventories. Notes: credguild.com/cfa/level-1/notes/financial-statement-analysis/lifo-vs-fifo/

Question 132 **Answer: B**

Producers and dealers of commodities, such as agricultural and forest products, mineral ores and precious metals, may report inventory at net realizable value even when it exceeds historical cost. The exception applies under both IFRS and US GAAP. Gains and losses from changing market prices are recognized in the income statement, and the quoted price is used when an active market exists.

Why the other options are wrong

- **A.** Under US GAAP, inventory is carried at the lower of cost and net realizable value (lower of cost or market for LIFO and the retail method), so a rise in value above cost is not recognized. The commodity exception does not extend to an electronics retailer.
- **C.** Under IFRS, a write-down is reversed when net realizable value recovers, but the reversal is limited to the amount of the original write-down. The carrying amount can return to cost but cannot exceed it.

Key takeaway Inventory above historical cost is allowed for commodity producers and dealers (agricultural and forest products, minerals, precious metals) under both IFRS and US GAAP, with value changes in the income statement. A write-down reversal restores cost at most.

Reading 32: Analysis of Inventories. Notes: credguild.com/cfa/level-1/notes/financial-statement-analysis/lifo-vs-fifo/

Question 133 **Answer: A**

FIFO cost of goods sold equals LIFO cost of goods sold minus the change in the LIFO reserve over the year. The reserve fell by $74,000, so the change is negative and FIFO COGS is higher than LIFO COGS. That fits falling purchase costs: FIFO charges the older, higher costs to COGS, while LIFO charges the newest, lower costs. Inventory quantities did not change, so no old LIFO layers were drawn down: the fall in the reserve reflects lower purchase costs, not a LIFO liquidation. The restatement formula would be the same in either case.

Change in the LIFO reserve $= 538{,}000 - 612{,}000 = -74{,}000$.

$$\text{FIFO COGS} = \text{LIFO COGS} - (\text{ending LIFO reserve} - \text{beginning LIFO reserve})$$

$$\text{FIFO COGS} = 4{,}815{,}000 - (-74{,}000) = 4{,}889{,}000$$

Check with the inventory equation, COGS = beginning inventory + purchases − ending inventory. Purchases are the same under both methods. FIFO inventory exceeds LIFO inventory by $612,000 at the start of the year and by $538,000 at the end, so FIFO COGS exceeds LIFO COGS by $612{,}000 - 538{,}000 = 74{,}000$.

Why the other options are wrong

- **B.** $4,741,000 subtracts $74,000 from LIFO COGS, as if the reserve had risen. The reserve fell, so the change is negative and subtracting it raises COGS.
- **C.** $4,277,000 subtracts the whole ending LIFO reserve of $538,000. The ending reserve is the cumulative difference between FIFO and LIFO inventory and is the balance sheet adjustment. Only the change in the reserve during the year passes through COGS.

Key takeaway $\text{FIFO COGS} = \text{LIFO COGS} - \Delta\text{LIFO reserve}$ and $\text{FIFO inventory} = \text{LIFO inventory} + \text{LIFO reserve}$. A falling reserve makes FIFO COGS higher than LIFO COGS.

Reading 32: Analysis of Inventories. Notes: credguild.com/cfa/level-1/notes/financial-statement-analysis/lifo-vs-fifo/

Question 134 **Answer: A**

In a LIFO liquidation, units from older, cheaper layers pass into cost of goods sold. The gap between FIFO and LIFO inventory, the LIFO reserve, then shrinks. A decrease in the reserve disclosed in the footnotes is therefore the direct signal, and the analyst should adjust margins if its effect is material.

Why the other options are wrong

- **B.** A liquidation does raise the gross margin, but margins also rise for many other reasons, such as higher selling prices or lower input costs, so a higher margin alone does not identify a liquidation.

- **C.** Inventory can fall relative to sales for other reasons, such as better inventory management, and under FIFO or weighted average cost no LIFO layers exist to liquidate. The footnote reserve is the specific test.

Key takeaway Look for a fall in the LIFO reserve in the footnotes to spot a LIFO liquidation; the profit boost it gives is not sustainable.

Reading 32: Analysis of Inventories. Notes: credguild.com/cfa/level-1/notes/financial-statement-analysis/lifo-vs-fifo/

Question 135 **Answer: C**

Days of inventory on hand equals 365 divided by inventory turnover (COGS / average inventory). DOH has risen from 50 to 80 days while sales growth has slowed and finished goods have grown far faster than sales. These are signs of slow-moving or obsolete inventory that could require write-downs and depress future earnings.

Year 1: turnover $= 7{,}300/1{,}000 = 7.30$; DOH $= 365/7.30 = 50$ days.

Year 2: turnover $= 7{,}665/1{,}680 = 4.5625$; DOH $= 365/4.5625 = 80$ days.

Finished goods grow $975/610 - 1 \approx 59.8\%$ versus sales growth of 3%.

Why the other options are wrong

- **A.** About 50 days is the Year 1 figure; in Year 2 turnover fell to about 4.56, so DOH rose to about 80 days. A rise in DOH is not a sign of greater efficiency.
- **B.** The DOH figure is right, but a higher DOH (lower turnover) means inventory is sitting longer. Together with finished goods outpacing sales, this points to weaker inventory management.

Key takeaway Low turnover or rising DOH, together with finished goods outpacing sales, points to obsolescence and future write-downs.

Reading 32: Analysis of Inventories. Notes: credguild.com/cfa/level-1/notes/financial-statement-analysis/lifo-vs-fifo/

Question 136 **Answer: C**

The costs of creating an intangible asset such as a trademark internally are generally expensed as incurred, so no asset is recognized and there is nothing to amortize. A trademark bought from another party is recorded at cost, and one obtained in a business combination is recorded at its fair value under the acquisition method; both are then amortized because they have finite lives.

Why the other options are wrong

- **A.** A purchased intangible asset is recognized at cost (its fair value when bought). Because this trademark has a finite life, that cost is amortized, so it does appear at cost less accumulated amortization.
- **B.** Under the acquisition method, identifiable intangibles of the target are recognized at fair value on the acquisition date, even if the target built them itself. A finite-lived trademark recognized this way is then amortized.

Key takeaway Intangibles that are purchased or acquired in a business combination are on the balance sheet; those created internally are expensed, apart from the R&D and software exceptions.

Reading 33: Analysis of Long-Term Assets. Notes: credguild.com/cfa/level-1/notes/financial-statement-analysis/straight-line-depreciation/

credguild.com

Question 137 **Answer: B**

After the year of the outlay, the capitalizing firm still deducts depreciation, while the expensing firm has already charged the full amount, so the capitalizer's net income is lower. Its total assets are also higher because the capitalized cost is still on the balance sheet. A lower numerator over a higher denominator gives a lower return on assets (net income / total assets).

Why the other options are wrong

- **A.** Net income is lower, but ROA cannot be higher: the capitalizer has both a smaller numerator and a larger asset base.
- **C.** Net income is higher only in the year the cost is incurred (when capitalizing avoids the full expense). In later years depreciation makes it lower.

Key takeaway Compared with expensing, capitalizing gives higher net income and higher CFO in the first year, because the outlay is an investing flow. In later years it gives lower net income and lower ROA and ROE, while CFO is unchanged for a single outlay because amortization and depreciation are noncash.

Reading 33: Analysis of Long-Term Assets. Notes: credguild.com/cfa/level-1/notes/financial-statement-analysis/straight-line-depreciation/

Question 138 **Answer: A**

An intangible asset with an indefinite useful life is not amortized. It is tested for impairment at least annually, and an impairment loss is recognized when its carrying amount exceeds its fair value. Under US GAAP there is no recoverability screen based on undiscounted cash flows for such an asset, so the $64 million carrying amount is compared directly with the $52 million fair value. The loss of $12 million is measured against fair value itself, with no deduction for costs to sell.

$$\text{Impairment loss} = \text{carrying amount} - \text{fair value} = 64 - 52 = \$12 \text{ million}$$

The brand is written down to $52 million and the $12 million loss is reported in the income statement.

For comparison, the two tests that do not apply here:

Test	Calculation	Result
US GAAP recoverability test for PP&E held for use	undiscounted cash flows 90 > carrying amount 64	no impairment
IFRS recoverable amount	$\max(52 - 3,\ 58) = 58$; loss $= 64 - 58$	loss of 6

Why the other options are wrong

- **B.** $6 million uses the IFRS recoverable amount, the higher of fair value less costs to sell ($49 million) and value in use ($58 million). Tamarind reports under US GAAP, which measures the loss against fair value.
- **C.** $0 applies the US GAAP recoverability test used for PP&E and finite-lived assets held for use: undiscounted cash flows of $90 million exceed the carrying amount, so that test would stop there. An indefinite-lived intangible asset is compared directly with its fair value, so the undiscounted cash flows do not matter.

Key takeaway Under US GAAP, PP&E held for use passes an undiscounted cash flow test before any loss is measured. An indefinite-lived intangible asset skips that screen: whenever its carrying amount exceeds fair value, the excess is an impairment loss, even if undiscounted cash flows are well above the carrying amount.

Reading 33: Analysis of Long-Term Assets. Notes: credguild.com/cfa/level-1/notes/financial-statement-analysis/straight-line-depreciation/

Question 139 **Answer: B**

Remaining useful life is net PP&E (gross PP&E minus accumulated depreciation) divided by annual depreciation expense.

$$\text{Net PP\&E} = 840 - 336 = 504$$

$$\text{Remaining useful life} = \frac{504}{48} = 10.5 \text{ years}$$

Check: total useful life $= 840/48 = 17.5$; average age $= 336/48 = 7.0$; $17.5 - 7.0 = 10.5$.

Why the other options are wrong

- **A.** 7.0 years is the average age (accumulated depreciation / depreciation expense = 336 / 48).
- **C.** 17.5 years is the total useful life (gross PP&E / depreciation expense = 840 / 48).

Key takeaway Remaining life = total life − average age; computing all three is a quick consistency check.

Reading 33: Analysis of Long-Term Assets. Notes: credguild.com/cfa/level-1/notes/financial-statement-analysis/straight-line-depreciation/

Question 140 **Answer: C**

A lessee usually returns the asset at the end of the lease, so it does not benefit from any appreciation (unless the lease includes a purchase option). Capturing gains in the asset's value is a reason to own the asset rather than lease it.

Why the other options are wrong

- **A.** Since the leased asset effectively serves as collateral, the implicit lease rate may be below what a lender would charge to finance a purchase. This is a genuine reason to lease.
- **B.** Leases typically require a small initial payment, if any, so leasing conserves cash at inception compared with a purchase. This is also a genuine reason to lease.

Key takeaway Advantages of leasing: smaller initial outflow, cheaper financing, less obsolescence risk. Appreciation belongs to the owner (the lessor).

Reading 34: Topics in Long-Term Liabilities and Equity. Notes: credguild.com/cfa/level-1/notes/financial-statement-analysis/finance-lease-vs-operating-lease/

Question 141 **Answer: C**

In an operating lease the underlying asset stays on the lessor's balance sheet (usually in PP&E), and the lessor depreciates it. The lessee instead recognizes a right-of-use asset and a lease liability, both initially equal to the present value of the lease payments; the ROU asset represents Aerolinea's right to use the jet, not the jet itself.

Why the other options are wrong

- **A.** The lessor still owns and reports the jet in an operating lease, so it does appear on a balance sheet.
- **B.** The lessee reports a right-of-use asset (its right to use the jet over the lease term) and a lease liability. The physical jet is owned and reported by the lessor.

Key takeaway Operating lease: physical asset on lessor's books; ROU asset and lease liability on lessee's books.

Reading 34: Topics in Long-Term Liabilities and Equity. Notes: credguild.com/cfa/level-1/notes/financial-statement-analysis/finance-lease-vs-operating-lease/

Question 142 **Answer: B**

Both IFRS and US GAAP measure an employee stock option at its fair value on the grant date, estimated with an option-pricing model, and recognize that amount straight-line over the vesting period as compensation expense (with a matching credit to equity).

$$\text{Total fair value} = 60{,}000 \times 7.50 = \$450{,}000$$

$$\text{Annual expense} = \frac{450{,}000}{4} = \$112{,}500$$

Each year: compensation expense $112,500; equity (APIC or a share-based compensation reserve) +$112,500, so total equity is unchanged.

Why the other options are wrong

- **A.** $450,000 is the total grant-date fair value ($60{,}000 \times 7.50$), which would be expensed at once only if the options vested immediately. Here it is spread over four years.
- **C.** $0 uses the intrinsic value at grant (the share price of $38 is below the $40 exercise price). The expense is based on the options' grant-date fair value, which is positive even though they are out of the money.

Key takeaway Option expense equals grant-date fair value divided by the vesting years. It is not based on intrinsic value and is not remeasured for later share price changes.

Reading 34: Topics in Long-Term Liabilities and Equity. Notes: credguild.com/cfa/level-1/notes/financial-statement-analysis/finance-lease-vs-operating-lease/

Question 143 **Answer: C**

Required share-based compensation disclosures are the nature and key terms of the plans (grant date, vesting date, service period, settlement features), how grant-date fair value was determined, and the effect of the arrangements on earnings and financial position. The share price at the reporting date may help users but is not a required disclosure.

Why the other options are wrong

- **A.** The method used to determine grant-date fair value is a required disclosure, because the expense rests on it.
- **B.** Companies must disclose the effect of share-based transactions on both the income statement and the balance sheet.

Key takeaway Share-based pay disclosures: plan nature and terms, how grant-date fair value was set, effects on the income statement and balance sheet.

Reading 34: Topics in Long-Term Liabilities and Equity. Notes: credguild.com/cfa/level-1/notes/financial-statement-analysis/finance-lease-vs-operating-lease/

credguild.com

Question 144 **Answer: A**

A temporary difference creates a deferred tax item: a DTL if income tax expense (financial reporting) exceeds taxes payable (tax reporting), or a DTA if taxes payable exceed income tax expense. Permanent differences, rather than temporary ones, are what make the effective tax rate differ from the statutory rate.

Why the other options are wrong

- **B.** Neither temporary nor permanent differences generate a gain or loss; they affect tax balances and tax expense.
- **C.** Temporary differences typically do not make the effective and statutory rates differ, because the deferred tax expense adjusts income tax expense to the statutory rate on pretax income. Permanent differences cause that gap.

Key takeaway A temporary difference creates a deferred tax item. A permanent difference makes the effective rate differ from the statutory rate.

Reading 35: Analysis of Income Taxes. Notes: credguild.com/cfa/level-1/notes/financial-statement-analysis/deferred-tax-liability/

Question 145 **Answer: B**

Unearned revenue (cash received in advance) is usually taxed when received but recognized in the income statement only later, when earned. Taxes payable therefore exceed income tax expense now, and a deferred tax asset is created that reverses when the revenue is recognized.

Why the other options are wrong

- **A.** Accelerated depreciation on the tax return (with straight-line depreciation in the financial statements) makes the tax deduction come before the book expense, so taxable income is initially lower than pretax income and a deferred tax liability is created. Other combinations of book and tax depreciation methods can produce either type of deferred tax item, but this pairing is the classic DTL case.
- **C.** A change in the enacted rate only remeasures existing deferred balances; a decrease *reduces* existing DTAs and DTLs rather than creating a DTA.

Key takeaway Typical DTA sources: unearned revenue, warranty provisions, post-employment benefits, tax loss carryforwards.

Reading 35: Analysis of Income Taxes. Notes: credguild.com/cfa/level-1/notes/financial-statement-analysis/deferred-tax-liability/

Question 146 **Answer: C**

Deferred tax assets and liabilities are measured at the tax rate expected to apply when the differences reverse, so an enacted rate change remeasures both balances and the adjustment flows through income tax expense in the period of enactment. A higher rate raises both the DTA and the DTL. Lochmere's DTA is larger than its DTL, so the DTA rises by more, and income tax expense falls.

Underlying temporary differences: DTA $360/0.24 = 1{,}500$; DTL $150/0.24 = 625$ (thousands of dollars).

Remeasured at 28%: DTA $= 1{,}500 \times 0.28 = 420$, so $\Delta DTA = +60$; DTL $= 625 \times 0.28 = 175$, so $\Delta DTL = +25$.

$$\Delta\text{income tax expense} = \Delta DTL - \Delta DTA = 25 - 60 = -35$$

Income tax expense falls by $35,000 and net income rises by the same amount.

Why the other options are wrong

- **A.** An increase of $25,000 remeasures only the deferred tax liability. The deferred tax asset is remeasured too, and its $60,000 increase reduces tax expense by more than the liability adds.
- **B.** The balances must reflect the rate expected when they reverse. Once the higher rate is enacted they are remeasured at once, and the change is recognized in this year's income tax expense even though the new rate applies to later tax returns.

Key takeaway A higher enacted tax rate increases both DTAs and DTLs. Income tax expense rises for a company with a net DTL and falls for a company with a net DTA, so a rate increase does not always raise tax expense.

Reading 35: Analysis of Income Taxes. Notes: credguild.com/cfa/level-1/notes/financial-statement-analysis/deferred-tax-liability/

Question 147 **Answer: A**

Reclassifying a DTL moves an amount from liabilities to equity; total assets and net income are unchanged, so return on assets is unaffected. Equity rises, which changes every ratio that uses equity in the numerator or denominator.

Why the other options are wrong

- **B.** The debt-to-equity ratio falls because liabilities decrease and equity increases.
- **C.** Return on equity falls because the equity denominator becomes larger while net income is unchanged.

Key takeaway Reclassifying a DTL as equity lowers leverage ratios and ROE but leaves ROA unchanged.

Reading 35: Analysis of Income Taxes. Notes: credguild.com/cfa/level-1/notes/financial-statement-analysis/deferred-tax-liability/

Question 148 **Answer: C**

A tax holiday is a temporary exemption from tax in a particular jurisdiction, so it is a sporadic reconciliation item. The key analytical task is to establish when the holiday will expire and how its expiry (including any requirement to pay accumulated taxes) will affect future taxes payable and the effective rate.

Why the other options are wrong

- **A.** A tax holiday is temporary, so it is a sporadic item. Its termination date is the main thing the analyst needs to find out.
- **B.** Nothing suggests the holiday's benefit is routinely offset by home-country taxes. The analyst's focus is the end date and any taxes that become payable then.

Key takeaway A tax holiday is a sporadic item. Find its end date and any catch-up tax.

Reading 35: Analysis of Income Taxes. Notes: credguild.com/cfa/level-1/notes/financial-statement-analysis/deferred-tax-liability/

Question 149 **Answer: A**

Reporting quality is about whether the reports give decision-useful information that faithfully represents what happened. Earnings quality is about the underlying results: whether earnings are sustainable and adequate. A company can report a weak or one-off year accurately, so high-quality reporting can sit alongside low-quality

earnings.

Why the other options are wrong

- **B.** Earnings smoothed through chosen estimates do not faithfully represent performance, so the reports would not be high quality.
- **C.** Delaying impairments overstates assets and earnings; that is a bias in the reporting, which rules out high reporting quality.

Key takeaway High reporting quality says the reports are faithful and useful; it does not guarantee that the earnings they show are sustainable or adequate.

Reading 36: Financial Reporting Quality. Notes: credguild.com/cfa/level-1/notes/financial-statement-analysis/financial-reporting-quality/

Question 150 **Answer: B**

Low-quality (or fraudulent) reporting typically involves three conditions: motivation, opportunity, and a mindset that allows rationalization. Rationalization is the story managers tell themselves to justify the behavior ("we will fix it next quarter").

Why the other options are wrong

- **A.** Weak internal controls are an example of opportunity, which is already one of the two conditions named in the stem.
- **C.** Pressure to beat earnings expectations is an example of motivation, the other condition already given.

Key takeaway Motivation (why), opportunity (how), rationalization (the excuse).

Reading 36: Financial Reporting Quality. Notes: credguild.com/cfa/level-1/notes/financial-statement-analysis/financial-reporting-quality/

Question 151 **Answer: A**

A higher residual (salvage) value reduces the depreciable base, so annual depreciation expense falls and operating income rises.

$$\text{Depreciation} = \frac{\text{cost} - \text{residual value}}{\text{useful life}}$$

A higher residual value shrinks the numerator, which lowers expense. A shorter life shrinks the denominator, which raises expense.

Why the other options are wrong

- **B.** Shorter useful lives spread the cost over fewer periods, which increases depreciation expense and lowers operating income.
- **C.** Under IFRS, a revaluation above depreciated cost is not recognized in profit (it goes to a revaluation surplus) unless it reverses a loss previously recognized. The higher carrying amount also increases depreciation in later periods, which lowers operating income.

Key takeaway Aggressive depreciation choices: longer lives and higher salvage values. Both lower depreciation and raise income.

Reading 36: Financial Reporting Quality. Notes: credguild.com/cfa/level-1/notes/financial-statement-analysis/financial-reporting-quality/

Question 152 **Answer: A**

An interest coverage covenant is based on EBIT divided by interest expense. The most direct way to raise the ratio is to overstate earnings (the numerator), or possibly to understate interest expense (the denominator). Under US GAAP, for example, leases can be structured to qualify as operating leases, whose single lease cost is reported in operating expenses rather than as interest expense.

$$\text{Interest coverage} = \frac{\text{EBIT}}{\text{interest expense}}$$

Why the other options are wrong

- **B.** Asset values do not enter the interest coverage ratio, so understating (or overstating) assets does not help meet the covenant.
- **C.** Capitalizing leases works against the covenant. Treating a lease as a finance (capital) lease replaces the lease payment with depreciation plus interest expense: EBIT rises by roughly the interest component, but interest expense rises by the same amount, and for any firm whose coverage exceeds 1.0 that lowers the ratio (e.g., $(500 + 20)/(100 + 20) = 4.3\times$ versus $500/100 = 5.0\times$). A firm manipulating to meet the covenant would do the opposite and keep lease costs out of interest expense.

Key takeaway Match the manipulation to the covenant's formula. Coverage is EBIT / interest, so the levers are inflating EBIT or shrinking interest expense.

Reading 36: Financial Reporting Quality. Notes: credguild.com/cfa/level-1/notes/financial-statement-analysis/financial-reporting-quality/

Question 153 **Answer: C**

Expenses that are classified as nonrecurring but appear year after year are a warning sign. Labeling ordinary costs as one-time charges again and again lowers the credibility of the category and invites investors to exclude real, recurring costs when they judge sustainable profitability.

Why the other options are wrong

- **A.** Adopting a new standard when it becomes mandatory is required of every company. It reflects no management choice, so it does not by itself signal manipulation.
- **B.** The warning sign is a ratio of operating cash flow to net income that is persistently below one or falling. A stable ratio above one suggests that earnings are well backed by cash.

Key takeaway Watch for nonrecurring charges that recur, heavy emphasis on non-GAAP earnings and aggressive use of special-charge labels. They can distort the picture of sustainable earnings.

Reading 36: Financial Reporting Quality. Notes: credguild.com/cfa/level-1/notes/financial-statement-analysis/financial-reporting-quality/

Question 154 **Answer: A**

Setting a firm's ratios beside the same ratios of rival firms (or an industry average) for the same period is cross-sectional analysis. It shows how the firm performs relative to peers.

Why the other options are wrong

- **B.** Time-series analysis compares the same company's ratios across several periods, not across different firms in one period.
- **C.** Common-size analysis restates line items as percentages of a base (sales, total assets, or a base year). Varga is comparing ratios across firms, which is a different exercise.

Key takeaway Comparing several firms at one date is cross-sectional analysis. Following one firm across dates is time-series analysis.

Reading 37: Financial Analysis Techniques. Notes: credguild.com/cfa/level-1/notes/financial-statement-analysis/dupont-analysis/

Question 155 **Answer: B**

Inventory turnover is cost of goods sold divided by average inventory. With cost of goods sold roughly unchanged, a sharp fall in turnover means that average inventory rose. Duplicate orders add surplus stock, which increases average inventory and lowers turnover.

Why the other options are wrong

- **A.** A write-down at the start of the year reduces the carrying amount of inventory for the whole year. Average inventory is lower, so turnover rises.
- **C.** A just-in-time system is designed to keep inventory low. Lower average inventory raises turnover.

Key takeaway $\text{Inventory turnover} = \text{COGS}/\text{average inventory}$. Low turnover relative to peers can signal slow-moving or obsolete stock; high turnover can mean efficient management or inventory kept too low to meet demand, so compare revenue growth with peers before concluding.

Reading 37: Financial Analysis Techniques. Notes: credguild.com/cfa/level-1/notes/financial-statement-analysis/dupont-analysis/

Question 156 **Answer: B**

Sales divided by total assets is total asset turnover, an activity (operating efficiency) ratio that shows how effectively assets generate revenue. Operating profitability ratios compare a measure of profit with sales.

Why the other options are wrong

- **A.** Gross profit / net sales is the gross profit margin, a standard profitability ratio.
- **C.** Net income / net sales is the net profit margin, which is also a profitability ratio based on sales.

Key takeaway Profit ÷ sales is a profitability ratio (a margin). Sales ÷ assets is an activity ratio (a turnover).

Reading 37: Financial Analysis Techniques. Notes: credguild.com/cfa/level-1/notes/financial-statement-analysis/dupont-analysis/

Question 157 **Answer: B**

In the original DuPont equation, ROE is the product of net profit margin, total asset turnover and financial leverage. Because net income and equity are positive, the net profit margin and the equity multiplier are both positive, so with those two components fixed ROE moves in the same direction as asset turnover.

Why the other options are wrong

- **A.** Asset turnover enters ROE as a multiplier. With a positive margin and a positive equity multiplier held constant, a higher turnover cannot lower ROE. It would lower ROE only for a loss-making firm, which the stem rules out.

- **C.** The outcome is not ambiguous here: the other two components are held constant and are positive. The result would be indeterminate only without the positive-income premise (a zero margin leaves ROE unchanged; a negative margin makes ROE fall).

Key takeaway ROE = net profit margin × total asset turnover × financial leverage; for a profitable firm, raising any one component with the others fixed raises ROE.

Reading 37: Financial Analysis Techniques. Notes: credguild.com/cfa/level-1/notes/financial-statement-analysis/dupont-analysis/

Question 158 **Answer: B**

Forecast next year's sales, apply the common-size COGS percentage, and convert the target days of inventory on hand into an inventory balance: average inventory = COGS/365 × days of inventory on hand.

$$\text{Sales}_{20X6} = 200 \times 1.095 = 219 \qquad COGS = 0.50 \times 219 = 109.5$$

$$\text{Average inventory} = \frac{109.5}{365} \times 50 = 15.00 \quad (\$ \text{ millions})$$

Why the other options are wrong

- **A.** $13.70 million ignores the expected 9.5% sales growth and uses 20X5 COGS of $100 million.
- **C.** $30.00 million applies the inventory days to sales instead of cost of goods sold.

Key takeaway Days of inventory on hand is based on COGS: inventory = (COGS ÷ 365) × DOH.

Reading 37: Financial Analysis Techniques. Notes: credguild.com/cfa/level-1/notes/financial-statement-analysis/dupont-analysis/

Question 159 **Answer: B**

The income statement is modeled first: revenue, then COGS, then SG&A, financing costs and taxes. Capital expenditures and net PP&E for the balance sheet come after, and the cash flow statement is built last because it is derived from the pro forma income statement and balance sheet.

Why the other options are wrong

- **A.** The pro forma cash flow statement is the final step; it cannot be constructed until the income statement and balance sheet are complete.
- **C.** Capital expenditures and net PP&E for the balance sheet are estimated after the income statement has been modeled.

Key takeaway The order is revenue, COGS, SG&A, financing costs and taxes, then the balance sheet (working capital, capex and PP&E), and finally the cash flow statement.

Reading 38: Introduction to Financial Statement Modeling. Notes: credguild.com/cfa/level-1/notes/financial-statement-analysis/pro-forma-financial-statements/

Question 160 **Answer: B**

Conservatism bias (also called anchoring) is the tendency to make only small adjustments, or none, to a prior forecast when new information becomes available. Voss's reluctance to update despite new announcements fits this bias.

Why the other options are wrong

- **A.** Confirmation bias means seeking out evidence that supports an existing view and discounting contrary evidence. The scenario does not say whether the news supports or contradicts her view, only that she will not update.
- **C.** Representativeness bias is the tendency to rely on known classifications of past information; nothing in the scenario involves classifying the company based on superficial similarity.

Key takeaway Reluctance to update a forecast after new information is conservatism bias (anchoring).

Reading 38: Introduction to Financial Statement Modeling. Notes: credguild.com/cfa/level-1/notes/financial-statement-analysis/pro-forma-financial-statements/

Question 161 **Answer: A**

Adding the money amount of the cost increase to the price keeps gross profit per unit (and operating profit) unchanged, but because sales revenue is higher, gross, operating and net margins all fall.

This year: gross margin $= (80 - 50)/80 = 37.5\%$.

Next year: price $= \$84$, unit COGS $= \$54$, gross profit per unit $= \$30$.

$$\text{gross margin} = \frac{30}{84} = 35.7\%$$

Operating profit is unchanged: $2{,}000 \times 30 - 30{,}000 = \$30{,}000$ in both years; operating margin falls from $30{,}000/160{,}000 = 18.75\%$ to $30{,}000/168{,}000 = 17.9\%$.

Why the other options are wrong

- **B.** 37.5% is this year's gross margin (30/80); it assumes margins are unaffected by a full pass-through, but the same gross profit is now spread over higher revenue.
- **C.** 40.5% raises the price to $84 but forgets the $4 increase in unit COGS ((84 − 50)/84).

Key takeaway Full money pass-through of a cost increase with stable volume: profit unchanged, margins lower.

Reading 38: Introduction to Financial Statement Modeling. Notes: credguild.com/cfa/level-1/notes/financial-statement-analysis/pro-forma-financial-statements/

Question 162 **Answer: B**

The horizon for a cyclical company should be long enough that the current phase of the cycle does not drive above- or below-trend results. Extending the forecast to midcycle captures a midcycle (normalized) level of sales and profits.

Why the other options are wrong

- **A.** A one-year forecast may be more precise, but it reflects wherever the company currently is in the cycle, so earnings will be above or below trend.
- **C.** Two full cycles would be informative in principle, but forecasts that far out are unlikely to be accurate enough to be useful.

Key takeaway For a cyclical firm, forecast through midcycle to capture normalized earnings.

Reading 38: Introduction to Financial Statement Modeling. Notes: credguild.com/cfa/level-1/notes/financial-statement-analysis/pro-forma-financial-statements/

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Equities

Questions 163–209 · 12 readings

39 Common Stock vs Preferred Stock

Question 163

A trainee asks how an equity instrument differs from the other securities a company may issue. An equity instrument is *best* described as a security that:

A establishes a creditor relationship with a company.

B represents an ownership interest in a company.

C can represent either an ownership interest or a creditor position, depending on its terms.

Question 164

Under the terms in its equity prospectus, holders of Qarth Energy's shares will be offered any new shares the company issues before those shares are offered to other investors. This feature is known as:

A conversion rights.

B preemptive rights.

C split, subdivision, or combination rights.

Question 165

Brackley Utilities has three series of preference shares outstanding, identical apart from the features below. For the investors who hold them, which series is the *most* risky?

A Putable, cumulative preference shares.

B Noncallable, cumulative preference shares.

C Callable, noncumulative preference shares.

Question 166

An analyst is preparing a briefing on the main categories of private equity investment. Which of her statements is *most accurate*?

A Buyout equity concentrates on companies at the start-up and early stages of their development.

B Venture capital stakes can readily be sold in active, liquid secondary markets.

C Growth equity is capital a company raises during its growth stage, for example to finance expansion.

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40 Equity Jurisdictions, Classes, and the Voting Process

Question 167

A Chilean pension fund opens a brokerage account in Tokyo and buys the shares of a Japanese manufacturer on that company's home stock exchange. This is an example of:

A indirect investing.

B direct investing.

C dual listing.

Question 168

The founders of Veridian Apps own 15% of its shares but control a majority of the votes, because each of their shares carries ten votes while every other share carries one. This arrangement is an example of a:

A cumulative preference share issue.

B participating preference share issue.

C dual-class share structure.

Question 169

Kavanagh Dairy set the record date for voting at its annual meeting 35 days before the meeting. Ingrid Solheim, who owned 800 Kavanagh shares on the record date, sells them to Paulo Mendes 5 days before the meeting. Who is entitled to vote those 800 shares at the meeting?

A Mendes, because he owns the shares on the meeting date.

B Solheim, because she was the shareholder of record on the record date.

C Neither of them, because the shares changed hands after the record date.

41 Equity Issuance and Trading

Question 170

An analyst lists three recent transactions. Which one took place in the primary market?

A Two pension funds trade a block of listed shares directly with each other.

B A bank buys investment-grade corporate bonds from a dealer's inventory.

C A utility sells newly issued common shares to investors to fund a new plant.

Question 171

An analyst makes three statements about methods of issuing equity. Which statement is *least accurate*?

A A private company can obtain listed status through either a back-door listing or a direct listing.

B A SPAC shareholder can end up owning part of an acquired company even after voting against that target.

C Every seasoned equity offering reduces the proportional ownership of the company's current shareholders.

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Question 172

Owen Achebe owns 2,000 shares of Kilnsey Water and enters a limit order to sell all of them at 27.35. Just before his order arrives, the limit order book looks like this:

Limit order book for Kilnsey Water shares

Bid size (shares)	Limit price	Offer size (shares)
	27.60	800
	27.55	1,200
900	27.45	
600	27.40	
1,100	27.30	

Any shares that cannot be sold at once remain in the book as an offer. The average price of the shares he sells immediately is *closest* to:

A 27.35.

B 27.40.

C 27.43.

Question 173

An index provider designing a broad-based equity index for a national stock market would *most typically* weight the constituent stocks:

A by float-adjusted market capitalization.

B in proportion to their share prices.

C equally, regardless of company size.

42 Sources of Equity Returns

Question 174

Torvald Steel's profits rise and fall with the business cycle. After an exceptionally profitable year, its board wants to share the windfall with shareholders without committing to larger payments in future years. The type of distribution the board is *most likely* to declare is a:

A special dividend.

B regular dividend.

C stock dividend.

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Question 175

Galloway Brewing pays a dividend of $0.90 per share. Its shares close at $48.00 on the day before the ex-dividend date and at $45.60 on the ex-dividend date. Assume Galloway has the same risk as the overall market and there is no company news. The fraction of Galloway's ex-dividend-date price drop that is attributable to the market is *closest* to:

A 62.5%.

B 37.5%.

C 3.3%.

Question 176

An analyst expects shares of Marlow Utilities to trade at $66.00 one year from now and to pay a dividend of $2.20 per share at the end of the year. Investors' required rate of return on Marlow's equity is 11%. The value of a Marlow share today is *closest* to:

A $59.46.

B $61.44.

C $61.66.

43 Introduction to Equity Valuation

Question 177

Shares of Delvin Pharmacy trade at 14.0 times analysts' consensus forecast of next year's EPS, which is $3.20. Last year Delvin earned $2.90 per share. Using her own models, an analyst estimates the intrinsic value of a Delvin share at $40.00. From her point of view, Delvin shares are:

A undervalued by $4.80.

B overvalued by $0.60.

C overvalued by $4.80.

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Question 178

An analyst gathers the following market and financial data for Tamsin Ridge Appliances (amounts in millions except the share price).

Tamsin Ridge Appliances: selected data

Item	Value
Share price	$28.50
Common shares outstanding	12.0 million
Market value of preferred stock	$18 million
Market value of debt	$95 million
Cash and short-term investments	$31 million
EBITDA	$52 million

Tamsin Ridge's EV/EBITDA multiple is *closest* to:

A 7.8×.

B 8.2×.

C 8.8×.

Question 179

An analyst compares Tolliver Freight's ratio of enterprise value to EBITDA with the average ratio for other trucking companies. The analyst is using which type of valuation model?

A A multiplier model.

B An asset-based model.

C A discounted cash flow model.

44 Discounted Cash Flow (DCF) and Growth Models

Question 180

Which of the following statements *most accurately* contrasts a dividend discount model (DDM) with a free cash flow to equity (FCFE) model?

A A DDM reflects the firm's capacity to pay dividends, while an FCFE model uses the cash shareholders actually receive.

B A DDM takes the view of a minority shareholder, while an FCFE model takes the view of a controlling shareholder.

C A DDM assumes a volatile capital structure, while an FCFE model assumes the firm borrows aggressively.

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Question 181

Maren Solberg has concluded that both free cash flow measures for Halden Robotics are negative and are unlikely to turn positive for several years, so she will value the company's equity with a residual income model. Which condition must hold for her to use Halden's reported book value of equity without adjustment?

A The company follows clean surplus accounting.

B The company holds its debt-to-assets ratio constant.

C The company adjusts earnings for depreciation tax savings.

Question 182

Colm Brennan projects that shares of Ardent Furnishings will trade at $63.00 one year from now and that Ardent will pay a $1.80 dividend per share at the end of the year. Brennan discounts Ardent's cash flows at 9%. Ardent currently trades at $60.00. Based on Brennan's analysis, Ardent's shares are:

A Overvalued.

B Fairly priced.

C Undervalued.

Question 183

Brookmere Clinics is expected to generate free cash flow to the firm (FCFF) of $50 million in Year 1, $62 million in Year 2 and $80 million in Year 3. After Year 3, FCFF is expected to grow at 4% a year. Brookmere's weighted average cost of capital (WACC) is 8.5%. The value of the firm today is *closest* to:

A $1,609 million.

B $1,553 million.

C $1,495 million.

Question 184

Compared with an otherwise identical option-free preferred stock, a preferred stock with an embedded option *most likely* has a lower intrinsic value when the right to exercise the option is held by:

A the investor, as with a conversion feature.

B either party, because an embedded option always lowers value.

C the issuer, as with a call feature.

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45 Relative Value Equity Valuation Approaches

Question 185

Beatriz Almeida is valuing Penhallow Instruments with the method of comparables. The leading P/E ratios of the five companies in her peer group are 13.5, 14.5, 16.0, 20.0 and 48.0. The 48.0 multiple belongs to a peer whose earnings next year are expected to be temporarily depressed by a plant refit. Penhallow earned $2.60 per share over the last 12 months, and the consensus forecast of its EPS for next year is $2.95. Almeida's estimate of Penhallow's value per share is *closest* to:

A $41.60.

B $47.20.

C $66.08.

Question 186

Over its most recent business cycle, Dunmore Engineering earned an average return on equity of 16%. Its current book value per share is $31.50, its expected EPS for next year is $4.80, and its EPS averaged $4.35 over the same cycle. Using the average ROE method, Dunmore's normalized EPS is *closest* to:

A $4.35.

B $4.80.

C $5.04.

Question 187

Which of the following is *most likely* a limitation of relying on an industry-based peer group?

A Industry peers are assumed to carry the same financial leverage.

B Some companies operate across several distinct industries and markets.

C The law of one price requires factor models for firms operating abroad.

Question 188

Carys Morgan forecasts that Norrland Timber will earn $6.00 per share in Year 7. From then on she expects earnings and dividends to grow at 5% a year indefinitely, with 40% of earnings paid out, and she requires a 10% return. Using a justified leading P/E ratio, Norrland's terminal value per share at the end of Year 7 is *closest* to:

A $48.00.

B $50.40.

C $75.60.

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46 Financial Statement Forecasting in Equity Valuation

Question 189

Compared with a present value model that applies one or two growth rates to a single cash flow measure, the *main* benefit of a disaggregated valuation model built on forecast financial statements is that it:

A eliminates the need to estimate a terminal value.

B lets each statement component follow its own growth path.

C produces a more precise estimate of the discount rate.

Question 190

Tomasz Wilk is building a forecast for Halvorsen Aluminum. Halvorsen has just signed a four-year energy supply contract that fixes the electricity price for its smelters at a level well above what it paid in the past. Wilk wants his expense forecast to reflect the new contract terms. Which approach to forecasting expenses is *most* appropriate?

A Itemizing expenses.

B A historical approach.

C A direct profit margin approach.

Question 191

A venture capital fund targets an ROI multiple of 5x on a start-up investment that it expects to exit after six years. The annual required rate of return implied by this target is *closest* to:

A 30.8%.

B 34.8%.

C 66.7%.

Question 192

An investor estimates that Wexcombe Textiles has an 85% probability of surviving as a going concern, in which case its equity would be worth $46 million. If it does not survive, the investor expects a distress sale to leave shareholders $10 million after all creditor claims and sale costs are paid. The value of Wexcombe's equity is *closest* to:

A $46.0 million.

B $40.6 million.

C $15.4 million.

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Question 193

An analyst's forecast for Carrow Retail assumes that revenue will grow 3% a year, while most of Carrow's operating expenses, including SG&A and depreciation, will grow 5% to 6% a year. Based only on this information, which of the following is *most likely*?

A The gross profit margin is expected to remain steady.

B The net profit margin is expected to increase.

C The operating profit margin is expected to decrease.

47 Industry and Competitive Analysis

Question 194

Kalinda Osei is studying how carbon-pricing rules, changing attitudes toward home exercise, and higher interest rates could affect the fitness-equipment industry. She organizes these factors using the PESTLE framework. In the industry and competitive analysis process, this work is best described as:

A examining external influences.

B analyzing the industry structure.

C defining the industry.

Question 195

Rosalind Achebe wants to size the market for gluten-free infant cereal. She plans to use a national statistics agency's revenue figures for the packaged-food industry. The main drawback of this approach is *most likely* that:

A it is unsuitable when an industry contains many private firms.

B the data may not be detailed enough for a narrow product niche.

C revenue is hard to isolate for companies with several product lines.

Question 196

The residential elevator industry in a country has five manufacturers with market shares of 50%, 20%, 15%, 10% and 5%. Based on its Herfindahl-Hirschman Index (HHI), the industry's concentration is best described as:

A low.

B moderate.

C high.

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Question 197

Fennick Labs is exploring home diagnostics within the clearly defined medical-testing domain. The exact customer problem is not yet distinct, but its new testing model could create a new market or redefine the existing diagnostics market. This strategy is most characteristic of:

A disruptive innovation.

B breakthrough innovation.

C sustaining innovation.

48 Company Analysis: Past, Present, and Future

Question 198

Having finished her assessment of the competitive forces in the packaged-foods industry, an analyst now turns to one particular company in that industry. Which of the following is she *most likely* to examine next?

A The threat of substitute products.

B The bargaining power of suppliers.

C The company's competitive strategy.

Question 199

Fennwick Pumps makes solar-powered irrigation pumps. Across its home continent, annual demand for such pumps (the total addressable market) is estimated at $2.4 billion. Fennwick's pumps are certified only for the voltage standard used in 70% of that demand, and within the certified segment it holds sales licenses in countries representing 55% of that segment's demand. Its factory can supply at most $300 million of pumps a year. Fennwick's serviceable market is *closest* to:

A $924 million.

B $1,320 million.

C $1,680 million.

Question 200

An analyst is deciding whether to rely on net income when assessing a company's operating profitability. Which statement about net income is *most accurate*?

A It can be difficult to use for tracking a company's profitability over time.

B It is well suited to start-ups and to companies in highly cyclical industries.

C It is not recognized as a profitability measure under US GAAP or IFRS.

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Question 201

An analyst gathers the data in the exhibit for Pellworth Logistics.

Pellworth Logistics: selected data for the year ($ millions)

Item	Amount ($ millions)
Net income	54
Depreciation and amortization	18
Increase in noncash working capital	9
Capital expenditures (gross investment in long-term assets)	40
New long-term borrowing	25
Repayment of existing debt	10

Pellworth's free cash flow to equity (FCFE) for the year is *closest* to:

A $56 million.

B $48 million.

C $38 million.

Question 202

A long-established, capital-intensive electric utility with steady, predictable cash flows is *most likely* to finance its operations mainly by issuing:

A common stock.

B preferred stock.

C public bonds.

49 Equity Analyst Research Reports

Question 203

Which of the following statements about the front page of a report initiating coverage of a company is *most accurate*?

A It is written last, even though it is the first page investors read.

B It leaves out the recommendation so readers study the analysis first.

C It contains the full financial statement analysis behind the target.

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Question 204

Compared with a report initiating coverage, a subsequent company research report is *most likely* to emphasize:

A variance analysis comparing forecast and actual results.

B a full introduction to the company's revenue and expense drivers.

C a detailed overview of the industry and competitive positioning.

Question 205

Which of the following is more characteristic of sell-side analysts than of buy-side analysts? Sell-side analysts tend to:

A keep their final investment conclusions confidential.

B specialize in activist short-selling strategies.

C issue recommendations in line with the market consensus.

Question 206

Selin Arslan covers a company with revenue of $48 million and operating costs of $30 million, an operating profit margin of 37.5%. She forecasts revenue growth of 4% for next year and assumes the company will benefit from economies of scale. The operating profit margin Arslan forecasts for next year will *most likely*:

A stay at 37.5%, because operating costs are expected to grow in line with revenue.

B decline, because new capital investment will be charged immediately against operating profit.

C increase, because operating costs are expected to grow more slowly than revenue.

50 The Capital Asset Pricing Model, Market Model, and Other Factor-Based Equity Models

Question 207

Eighteen months ago, Galloway Industries sold its stable consumer division and financed a large acquisition mostly with new debt. An analyst estimating Galloway's beta with the market model decides to lengthen the lookback period from 2 years to 8 years. This change will *most likely*:

A make the beta a better estimate of Galloway's future systematic risk, because a larger sample lowers statistical noise.

B increase the amount of mean reversion built into the adjusted beta.

C produce a beta that reflects a risk profile Galloway no longer has.

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Question 208

A broad equity index currently offers a dividend yield of 2.2%, and its earnings and dividends are expected to grow at 5.5% a year over the long term. The risk-free rate is 3.1%. A forward-looking estimate of the market risk premium is *closest* to:

A 4.6%.

B 7.7%.

C 10.8%.

Question 209

An analyst estimates the following four-factor model betas for Tidewater Logistics:

Four-factor model betas for Tidewater Logistics

Factor	Beta
Market	0.90
Size (SMB)	−0.30
Value (HML)	0.42
Momentum (UMD)	−0.15

Based on these betas, Tidewater is *most appropriately* characterized as a:

A small-cap value stock.

B large-cap growth stock.

C large-cap value stock.

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EQUITIES

Answers and explanations

Answer key: 163. B · 164. B · 165. C · 166. C · 167. B · 168. C · 169. B · 170. C · 171. C · 172. C · 173. A · 174. A · 175. A · 176. B · 177. C · 178. B · 179. A · 180. B · 181. A · 182. A · 183. A · 184. C · 185. B · 186. C · 187. B · 188. B · 189. B · 190. A · 191. A · 192. B · 193. C · 194. A · 195. B · 196. C · 197. A · 198. C · 199. A · 200. A · 201. C · 202. C · 203. A · 204. A · 205. C · 206. C · 207. C · 208. A · 209. C

Question 163 Answer: B

An equity instrument gives its holder ownership of a portion of a corporation. Debt instruments such as loans and bonds, by contrast, create a creditor relationship between the investor and the company.

Why the other options are wrong

- **A.** Loans, bonds and other debt instruments create a creditor relationship.
- **C.** An equity instrument is by definition an ownership interest; it does not switch between ownership and creditor status.

Key takeaway Equity is ownership; debt is a creditor relationship.

Reading 39: Equity Instrument Features. Notes: credguild.com/cfa/level-1/notes/equities/common-stock-vs-preferred-stock/

Question 164 Answer: B

Preemptive rights let current holders buy newly issued shares before anyone else is offered them, so they can keep their proportional stake in the company. Without preemptive rights, a new share issue sold to other investors would dilute existing holders' percentage ownership; the right is one of the features disclosed in the equity prospectus.

Why the other options are wrong

- **A.** Conversion rights allow a holder to change the security into another type, such as from preferred shares into common shares.
- **C.** Split, subdivision, or combination rights set out how a holder's proportional ownership is treated if shares are split, subdivided or combined.

Key takeaway A first right to buy newly issued shares is a preemptive right.

Reading 39: Equity Instrument Features. Notes: credguild.com/cfa/level-1/notes/equities/common-stock-vs-preferred-stock/

Question 165 Answer: C

A call feature is the issuer's right to repurchase the shares at the call price, which caps the holder's gains and is likely to be used when the holder would prefer to keep the shares. A noncumulative dividend that is skipped is lost, whereas skipped cumulative dividends must be made up before common shareholders receive anything. The callable noncumulative series carries both disadvantages, so it is the riskiest for the holder.

Compare the features from the holder's side:

- Callable: the issuer holds the option, which adds risk for the holder. Putable: the holder can sell the shares back at the put contingency price, which reduces risk. Noncallable: neither side holds an option.

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- Cumulative: missed dividends accumulate and rank ahead of common dividends. Noncumulative: missed dividends are gone.

Only the callable noncumulative series has a feature against the holder on both counts.

Why the other options are wrong

- **A.** This is the least risky series. The put limits the holder's losses, and skipped dividends accumulate.
- **B.** Without a call, the issuer cannot take the shares away when their value rises, and skipped dividends still accumulate. This series is less risky than the callable noncumulative one.

Key takeaway From the holder's side, putable and cumulative features reduce risk; callable and noncumulative features add it.

Reading 39: Equity Instrument Features. Notes: credguild.com/cfa/level-1/notes/equities/common-stock-vs-preferred-stock/

Question 166 Answer: C

Growth equity is the capital a company raises while it is in the growth phase of its life cycle; the money is often used to expand the business. Raising it can also reduce the concentrated ownership left over from the venture capital stage.

Why the other options are wrong

- **A.** Buyout equity is aimed at mature-stage companies that investors think are underperforming. Start-up and early-stage financing is venture capital.
- **B.** Venture capital investments are illiquid: there is no active market for the shares, and investors usually have to keep their money committed for several years before they can exit.

Key takeaway Each private equity type matches a life-cycle stage: venture capital funds start-up and early-stage firms, growth equity funds growing firms, buyout equity targets mature firms, and special situations covers distressed or restructuring firms.

Reading 39: Equity Instrument Features. Notes: credguild.com/cfa/level-1/notes/equities/common-stock-vs-preferred-stock/

Question 167 Answer: B

Direct investing in foreign companies means buying the foreign firm's securities in its own (foreign) market. The pension fund does this when it buys on the Tokyo exchange.

Why the other options are wrong

- **A.** Indirect investing means holding an instrument that represents the company's shares, such as a depository receipt, instead of buying the shares on their home exchange.
- **C.** Dual listing is something a company arranges: its shares trade on one or more foreign exchanges in addition to its home exchange. The pension fund is simply buying the shares on the company's home exchange, which is direct investing.

Key takeaway Buying foreign shares on their home exchange is direct investing; buying DRs is indirect investing; dual listing is a company's decision to list its shares abroad.

Reading 40: Equity Jurisdictions, Classes, and the Voting Process. Notes: credguild.com/cfa/level-1/notes/equities/equity-jurisdictions-classes-and-the-voting-process/

Question 168 **Answer: C**

In a dual-class share structure, some classes of common stock carry more votes than others. This can give a group such as the founders effective control while they own less than a majority of the shares.

Why the other options are wrong

- **A.** Cumulative preference shares concern dividends in arrears and typically carry no voting rights.
- **B.** Participating preference shares concern extra dividends and typically carry no voting rights.

Key takeaway Unequal votes across classes of common stock indicate a dual-class share structure, often used to keep founder control.

Reading 40: Equity Jurisdictions, Classes, and the Voting Process. Notes: credguild.com/cfa/level-1/notes/equities/equity-jurisdictions-classes-and-the-voting-process/

Question 169 **Answer: B**

Eligibility to vote is fixed on the record date: the custodian identifies the shareholder of record as of that date. A shareholder who sells after the record date but before the meeting remains eligible to vote the shares, so Solheim votes them.

Why the other options are wrong

- **A.** Mendes bought after the record date, so he is not the shareholder of record for this meeting and cannot vote these shares at it.
- **C.** A sale after the record date does not cancel the votes; the seller who held the shares on the record date keeps the right to vote them.

Key takeaway Voting eligibility follows the record date (often 30 or more days before the meeting). Ownership on the meeting day does not matter.

Reading 40: Equity Jurisdictions, Classes, and the Voting Process. Notes: credguild.com/cfa/level-1/notes/equities/equity-jurisdictions-classes-and-the-voting-process/

Question 170 **Answer: C**

The primary market is the market for new issues: the securities are sold for the first time and the issuer receives the proceeds. The utility's sale of newly issued shares to finance a plant is a primary market transaction.

Why the other options are wrong

- **A.** Institutions trading existing listed shares with each other is a secondary market trade; the issuer receives nothing.
- **B.** Buying bonds that already sit in a dealer's inventory is a secondary market purchase. Credit quality (investment grade or not) has nothing to do with whether a market is primary or secondary.

Key takeaway A primary market sale is the first sale of a new security, with proceeds going to the issuer.

Reading 41: Equity Issuance and Trading. Notes: credguild.com/cfa/level-1/notes/equities/equity-issuance-and-trading/

Question 171 **Answer: C**

A seasoned equity offering is dilutive only when the company sells newly created shares (a primary follow-on offering). When the shares sold are existing shares held by founders or other private investors (a secondary follow-on offering), no new shares are created and existing proportional ownership is unchanged, so the

statement that every seasoned offering dilutes current holders is false.

Why the other options are wrong

- **A.** This is accurate. In a back-door listing a private company buys a listed company and uses its listing; in a direct listing a private company has its existing shares admitted to trading. Both give a private company the benefits of listed status.
- **B.** This is accurate. SPAC shareholders vote to approve the acquisition target, but the vote need not be unanimous, so an investor who opposed the target can still become a shareholder of the acquired business after the de-SPAC transaction.

Key takeaway A primary follow-on sells new shares and is dilutive; a secondary follow-on sells existing shares and is nondilutive. The word "seasoned" alone does not say which.

Reading 41: Equity Issuance and Trading. Notes: credguild.com/cfa/level-1/notes/equities/equity-issuance-and-trading/

Question 172 **Answer: C**

A sell limit order trades against the bids in order from the highest price downward, but never at a price below its limit. The bids at 27.45 and 27.40 are within the 27.35 limit; the bid at 27.30 is not. The order therefore sells 1,500 shares at once, and the average price is the volume-weighted average of those two fills.

Bids at or above 27.35: 900 shares at 27.45 and 600 shares at 27.40, a total of 1,500 shares.

$$\text{average price} = \frac{900 \times 27.45 + 600 \times 27.40}{1{,}500} = \frac{24{,}705 + 16{,}440}{1{,}500} = \frac{41{,}145}{1{,}500} = 27.43$$

The other 500 shares stay in the book as an offer at 27.35, which becomes the new lowest offer.

Calculator: `[(] 900 [×] 27.45 [)] [+] [(] 600 [×] 27.40 [)] [=] [÷] 1500 [=]` 27.43

Why the other options are wrong

- **A.** 27.35 is the limit price, the least the order may accept. The fills take place at the bid prices in the book, which are higher.
- **B.** 27.40 sells the last 500 shares at 27.30: $(41{,}145 + 500 \times 27.30)/2{,}000 = 27.3975$. That bid is below the 27.35 limit, so those shares cannot be sold.

Key takeaway A marketable sell limit order works down through the bids from the highest price and stops at its limit; weight the fill prices by the shares actually sold.

Reading 41: Equity Issuance and Trading. Notes: credguild.com/cfa/level-1/notes/equities/equity-issuance-and-trading/

Question 173 **Answer: A**

Broad-based equity indexes include the largest listed firms and are calculated on a market-capitalization-weighted basis, adjusted for market float. Larger companies therefore carry larger weights.

Why the other options are wrong

- **B.** Price weighting is not the typical method for broad-based equity indexes.
- **C.** Equal weighting is an alternative weighting method used to reduce the dominance of the largest companies in a broad-based equity index; it is not the standard approach.

Key takeaway Broad-based equity indexes are float-adjusted and cap-weighted; equal-weighted and factor-weighted versions are the alternatives.

Reading 41: Equity Issuance and Trading. Notes: credguild.com/cfa/level-1/notes/equities/equity-issuance-and-trading/

Question 174 Answer: A

A special (extraordinary) cash dividend is a one-time payment made when favorable circumstances allow, in addition to any regular dividend. Many cyclical companies use special dividends to share profits in good years while keeping the flexibility to conserve cash when profits fall.

Why the other options are wrong

- **B.** Raising the regular dividend creates an expectation that the higher payment will continue; cutting it later would send an adverse signal, and the board wants to avoid both.
- **C.** A stock dividend distributes new shares rather than cash and does not share any profits: total equity and shareholder wealth are unchanged.

Key takeaway A cyclical firm that wants to share a good year without a lasting commitment pays a special dividend.

Reading 42: Sources of Equity Returns. Notes: credguild.com/cfa/level-1/notes/equities/sources-of-equity-returns/

Question 175 Answer: A

Other things equal, the price should fall by the dividend on the ex-dividend date. Any decline beyond the dividend is attributed to the market, given that the stock has market-level risk and no company-specific news is mentioned.

Total decline $= 48.00 - 45.60 = \$2.40$.

Due to the dividend: $\$0.90$. Due to the market: $2.40 - 0.90 = \$1.50$.

$$\text{market share of decline} = \frac{1.50}{2.40} = 62.5\%$$

Why the other options are wrong

- **B.** 37.5% $(0.90/2.40)$ is the part of the decline caused by the dividend. The question asks for the market's part.
- **C.** 3.3% $(1.50/45.60)$ expresses the market-driven dollar decline as a percentage of the share price. The question asks what fraction of the *decline* is due to the market.

Key takeaway Split the ex-date price drop into dividend and market pieces in dollars first, then express each as a share of the total drop.

Reading 42: Sources of Equity Returns. Notes: credguild.com/cfa/level-1/notes/equities/sources-of-equity-returns/

Question 176 Answer: B

The value of an equity security today is the present value of the cash flows the investor expects to receive, discounted at the required rate of return. Over one period, those cash flows are the expected dividend and the expected ending price, both received at the end of the year.

$$P_0 = \frac{E(P_1) + E(D_1)}{1 + r_E} = \frac{66.00 + 2.20}{1.11} = \frac{68.20}{1.11} = \$61.44$$

Why the other options are wrong

- **A.** \$59.46 $(66.00/1.11)$ discounts only the expected price and leaves out the expected dividend.
- **C.** \$61.66 $(66.00/1.11 + 2.20)$ discounts the expected price but adds the dividend undiscounted, even though it is also received a year from now.

Key takeaway $P_0 = [E(P_1) + E(D_1)]/(1 + r_E)$: discount every future cash flow, including the dividend.

Reading 42: Sources of Equity Returns. Notes: credguild.com/cfa/level-1/notes/equities/sources-of-equity-returns/

Question 177 **Answer: C**

The market price follows from the multiple and the earnings figure it is based on, here next year's forecast EPS. A stock whose market price is above the investor's estimate of intrinsic value is overvalued from that investor's point of view. The analyst's \$40.00 is below the \$44.80 price.

$$P_0 = 14.0 \times 3.20 = \$44.80$$

$$\text{intrinsic value} - \text{price} = 40.00 - 44.80 = -\$4.80$$

The shares are overvalued by \$4.80.

Why the other options are wrong

- **A.** The size of the gap is right, but the direction is reversed. Undervalued would require intrinsic value above the market price.
- **B.** \$0.60 applies the multiple to the EPS of the year just ended, $14.0 \times 2.90 = 40.60$. The multiple is stated on next year's forecast, so the price is 14.0×3.20.

Key takeaway Intrinsic value above price means undervalued; below price means overvalued. Pair each multiple with the earnings figure it is based on.

Reading 43: Introduction to Equity Valuation. Notes: credguild.com/cfa/level-1/notes/equities/introduction-to-equity-valuation/

Question 178 **Answer: B**

Enterprise value is the market value of common and preferred stock plus the market value of debt, minus cash and short-term investments (an acquirer assumes the debt but also receives the cash). Dividing EV by EBITDA gives the multiple used for relative valuation.

Market value of common stock $= \$28.50 \times 12.0 = \$342$ million.

$$\text{EV} = 342 + 18 + 95 - 31 = \$424 \text{ million}$$

$$\text{EV/EBITDA} = \frac{424}{52} = 8.15 \approx 8.2\times$$

Why the other options are wrong

- **A.** 7.8× $(342 + 95 - 31)/52$ leaves out the \$18 million of preferred stock, which is part of the firm's equity capital.
- **C.** 8.8× $(342 + 18 + 95)/52$ forgets to subtract cash and short-term investments.

Key takeaway EV = common + preferred + debt − cash; then divide by EBITDA.

Reading 43: Introduction to Equity Valuation. Notes: credguild.com/cfa/level-1/notes/equities/introduction-to-equity-valuation/

Question 179 **Answer: A**

An enterprise value multiple expresses enterprise value relative to EBITDA, EBIT or revenue, and the analyst compares it across a peer group. That makes it a relative valuation (multiplier) model.

Why the other options are wrong

- **B.** An asset-based model values equity as the fair value of assets minus liabilities and preferred stock; it does not use a ratio compared with peers.
- **C.** A discounted cash flow model estimates value as the present value of forecast cash flows. It does not use a multiple of a current fundamental.

Key takeaway EV/EBITDA, P/E and P/B are all multiplier (relative valuation) models.

Reading 43: Introduction to Equity Valuation. Notes: credguild.com/cfa/level-1/notes/equities/introduction-to-equity-valuation/

Question 180 **Answer: B**

Dividends are what every shareholder receives and reflect the position of an investor who cannot influence dividend policy, which is a **minority shareholder** perspective. An FCFE valuation reflects a **controlling shareholder**, who can decide how much of the free cash flow is paid out.

Why the other options are wrong

- **A.** This reverses the two models: the DDM uses the cash actually received (dividends), while FCFE represents the firm's theoretical capacity to pay dividends.
- **C.** Neither model assumes a volatile capital structure or heavy borrowing; each is built on the premise that the firm's financing mix stays steady. When the mix is volatile, FCFF is the preferred measure.

Key takeaway A DDM takes the minority view of cash actually paid; FCFE takes the controlling view of cash that could be paid. Both assume a stable capital structure.

Reading 44: Discounted Cash Flow (DCF) and Growth Models. Notes: credguild.com/cfa/level-1/notes/equities/discounted-cash-flow-dcf-and-growth-models/

Question 181 **Answer: A**

A residual income model is built on book values, so it requires **clean surplus accounting**: the book value of equity may change only through the income statement (retained earnings) and through transactions with shareholders (dividends, share issuance and buybacks). Any item that bypasses the income statement, such as a foreign currency translation gain or loss, breaks this link and must be adjusted for by the analyst before the model is applied.

Why the other options are wrong

- **B.** A constant debt-to-assets ratio is an assumption used to forecast net borrowing when estimating FCFE ($FCFE = \text{net income} - (1 - DR)(\text{net investment})$); it is not a requirement of the residual income model.
- **C.** Adding back the tax savings on depreciation is part of converting EBITDA into FCFF. It has nothing to do with whether book values are usable in a residual income model.

Key takeaway The residual income model requires clean surplus accounting. A constant debt ratio belongs to FCFE forecasting, and the depreciation tax shield to the EBITDA-to-FCFF bridge.

Reading 44: Discounted Cash Flow (DCF) and Growth Models. Notes: credguild.com/cfa/level-1/notes/equities/discounted-cash-flow-dcf-and-growth-models/

Question 182 **Answer: A**

Compare the market price with the value implied by the analyst's forecasts. The one-period value is the present value of the year-end dividend plus the projected price.

$$V_0 = \frac{D_1 + P_1}{1 + r} = \frac{1.80 + 63.00}{1.09} = \frac{64.80}{1.09} = \$59.45$$

The market price of $60.00 is above the estimated value of $59.45, so the shares are overvalued.

Why the other options are wrong

- **B.** Fairly priced would require the market price to equal the $59.45 value; it is $0.55 higher.
- **C.** Undervalued would require the price to be below the estimated value. Comparing $60.00 with the undiscounted $64.80 might suggest this, but the cash flows arrive in one year and must be discounted.

Key takeaway A price above estimated value means the shares are overvalued; a price below it means they are undervalued.

Reading 44: Discounted Cash Flow (DCF) and Growth Models. Notes: credguild.com/cfa/level-1/notes/equities/discounted-cash-flow-dcf-and-growth-models/

Question 183 **Answer: A**

FCFF is discounted at the WACC to give firm value. The terminal value at the end of Year 3 uses the Year 4 cash flow, $FCFF_3(1 + g)$.

$$TV_3 = \frac{FCFF_3(1 + g)}{WACC - g} = \frac{80(1.04)}{0.085 - 0.04} = \frac{83.2}{0.045} = 1{,}848.89$$

$$V_0 = \frac{50}{1.085} + \frac{62}{1.085^2} + \frac{80 + 1{,}848.89}{1.085^3} = 46.08 + 52.67 + 1{,}510.14 = \$1{,}609 \text{ million}$$

Calculator: CF0 = 0; C01 = 50; C02 = 62; C03 = 1,928.89; [NPV] I = 8.5, [↓] [CPT] = 1,608.9.

Why the other options are wrong

- **B.** $1,553 million builds the terminal value from the Year 3 cash flow ($80/0.045 = 1{,}777.78$) instead of the Year 4 cash flow.
- **C.** $1,495 million discounts the Year 3 terminal value four periods instead of three.

Key takeaway Terminal value at time n uses the cash flow of period n + 1 and is discounted n periods.

Reading 44: Discounted Cash Flow (DCF) and Growth Models. Notes: credguild.com/cfa/level-1/notes/equities/discounted-cash-flow-dcf-and-growth-models/

Question 184 **Answer: C**

An embedded option is a right, not an obligation, so it has a non-negative value to the party that holds it. When the issuer holds the right, its value is subtracted from the option-free value of the preferred stock. A call feature lets the issuer redeem the shares at a predetermined price, so a callable preferred is worth less than a comparable non-callable preferred.

Why the other options are wrong

- **A.** When the investor holds the right, the option's value is added to the option-free value. A conversion feature lets the investor exchange the preferred for common shares at a set ratio, so a convertible preferred is worth more, not less.
- **B.** The effect depends on who holds the right. An option held by the issuer lowers the preferred's value; one held by the investor, such as a put or a conversion right, raises it.

Key takeaway Embedded option held by the issuer (call): subtract its value. Held by the investor (put, conversion): add its value.

Reading 44: Discounted Cash Flow (DCF) and Growth Models. Notes: credguild.com/cfa/level-1/notes/equities/discounted-cash-flow-dcf-and-growth-models/

Question 185 **Answer: B**

The method of comparables values a stock at the benchmark multiple of its peer group, applied to the stock's own value driver. One peer's multiple is inflated by temporarily depressed earnings, so the median, which a single extreme value does not pull, is the appropriate benchmark. A leading P/E has next year's forecast EPS in its denominator, so the benchmark is applied to Penhallow's forecast EPS of $2.95. Its trailing EPS would pair with a trailing multiple.

Sort the peers' leading P/Es: 13.5, 14.5, 16.0, 20.0, 48.0. With five values, the median is the third one:

$$\text{median leading } P/E = 16.0$$

Apply the benchmark to next year's EPS:

$$V_0 = \text{benchmark } \frac{P_0}{E_1} \times E_1 = 16.0 \times \$2.95 = \$47.20$$

Dropping the 48.0 outlier and averaging the other four peers gives the same benchmark: $(13.5 + 14.5 + 16.0 + 20.0)/4 = 64.0/4 = 16.0$. The mean of all five, $(13.5 + 14.5 + 16.0 + 20.0 + 48.0)/5 = 112.0/5 = 22.4$, is higher than four of the five peers because of the single 48.0 value.

Why the other options are wrong

- **A.** $16.0 \times \$2.60 = \$41.60$ applies a leading multiple to trailing EPS. The peer multiple and the subject's earnings must cover the same period, so a leading P/E is paired with forecast EPS.
- **C.** $22.4 \times \$2.95 = \$66.08$ uses the mean leading P/E of all five peers. The 48.0 multiple reflects one peer's temporarily depressed earnings and drags the mean well above the typical peer, so the median is the better benchmark.

Key takeaway Comparables-based value = benchmark multiple × the subject company's own value driver. Match the timing (a leading multiple with forecast EPS, a trailing multiple with trailing EPS), and use the

median when a few extreme multiples skew the peer group.

Reading 45: Relative Value Equity Valuation Approaches. Notes: credguild.com/cfa/level-1/notes/equities/relative-value-equity-valuation-approaches/

Question 186 Answer: C

Normalized earnings estimate mid-cycle EPS for a cyclical company. Under the average ROE method, normalized EPS equals the average ROE over the most recent cycle multiplied by the current book value per share.

$$\text{Normalized EPS} = \overline{ROE} \times BVPS_{\text{current}} = 0.16 \times 31.50 = \$5.04$$

Why the other options are wrong

- **A.** $4.35 is normalized EPS under the method of historical average EPS. That method does not reflect changes in firm size as well as the average ROE method does.
- **B.** $4.80 is simply next year's expected EPS, which is not adjusted for where the firm is in the business cycle.

Key takeaway Average ROE method uses current BVPS, so it captures growth in the firm's size; historical average EPS does not.

Reading 45: Relative Value Equity Valuation Approaches. Notes: credguild.com/cfa/level-1/notes/equities/relative-value-equity-valuation-approaches/

Question 187 Answer: B

Multi-industry companies are a recognized problem for industry-based peer groups. A conglomerate's mix of businesses gives it a blended risk and growth profile, and a single set of industry peers is unlikely to match that profile.

Why the other options are wrong

- **A.** Industry-based peer groups make no automatic assumption that all members have identical leverage. Analysts are told to check leverage differences among industry peers.
- **C.** The law of one price is the rationale for comparables. It does not require factor models for firms with international operations.

Key takeaway Industry-peer problems: unique firms, mixed life cycle stages, different tax/regulatory jurisdictions, and multi-industry companies.

Reading 45: Relative Value Equity Valuation Approaches. Notes: credguild.com/cfa/level-1/notes/equities/relative-value-equity-valuation-approaches/

Question 188 Answer: B

A forecast multiple can be applied to a forecast metric to estimate a terminal value. A justified leading P/E at the end of Year 7 must be multiplied by earnings expected for the following year (Year 8).

$$\text{Justified leading P/E} = \frac{0.40}{0.10 - 0.05} = 8.0$$

$E_8 = 6.00 \times 1.05 = 6.30$

$$TV_7 = 8.0 \times 6.30 = \$50.40$$

Check: trailing P/E $= 8.0 \times 1.05 = 8.4$; $8.4 \times 6.00 = \$50.40$.

Why the other options are wrong

- **A.** \$48.00 applies the leading P/E of 8.0 to Year 7 earnings (8.0×6.00) instead of Year 8 earnings.
- **C.** \$75.60 uses the retention ratio (0.60) in place of the payout ratio, giving a P/E of 12.0.

Key takeaway Leading P/E × next-year earnings (or, equivalently, trailing P/E × current earnings) gives the terminal value.

Reading 45: Relative Value Equity Valuation Approaches. Notes: credguild.com/cfa/level-1/notes/equities/relative-value-equity-valuation-approaches/

Question 189 **Answer: B**

A disaggregated model forecasts revenues, expenses, assets and financing separately, each with its own assumptions. That flexibility lets the analyst reflect industry projections, competition and company-specific information, which improves the cash flow forecast.

Why the other options are wrong

- **A.** A forecast model still covers only a finite horizon, so a terminal value is still needed to capture value beyond it.
- **C.** The model refines the cash flow estimates. The required return is estimated separately.

Key takeaway Disaggregated models improve the numerator (cash flows). They leave the denominator (discount rate) to be estimated separately, and they still need a terminal value.

Reading 46: Financial Statement Forecasting in Equity Valuation. Notes: credguild.com/cfa/level-1/notes/equities/financial-statement-forecasting-in-equity-valuation/

Question 190 **Answer: A**

Itemizing forecasts economically significant expense lines individually, so new information, such as the terms of a new supply contract, can be built directly into the affected line. Wilk can raise the energy cost line to reflect the contracted price while forecasting other costs separately.

Why the other options are wrong

- **B.** A historical approach (for example, a regression of each expense on revenue) assumes the past relationship between expenses and revenue will continue. The new contract breaks that relationship for energy costs, so history would misstate them.
- **C.** A direct profit margin approach assumes a margin without breaking costs into components, which makes it hard to capture the effect of one specific contract on one cost line.

Key takeaway New, specific information about a cost, such as a labor agreement, supplier terms or a lease, calls for itemizing.

Reading 46: Financial Statement Forecasting in Equity Valuation. Notes: credguild.com/cfa/level-1/notes/equities/financial-statement-forecasting-in-equity-valuation/

Question 191 **Answer: A**

The ROI multiple compounds the annual required return over the investment horizon: ROI multiple $= (1+r)^n$. Solve for r.

$$5 = (1+r)^6 \;\Rightarrow\; r = 5^{1/6} - 1 = 1.3077 - 1 = 30.8\%$$

Calculator: 5 [y^x] 6 [1/x] [=] gives 1.3077.

Why the other options are wrong

- **B.** 34.8% treats a 5x multiple as a 500% profit, i.e., a multiple of 6x: $6^{1/6} - 1$. A 5x multiple is a 400% profit.
- **C.** 66.7% divides the 400% total profit by six years ($(5-1)/6$), ignoring compounding.

Key takeaway $r = (\text{ROI multiple})^{1/n} - 1$. A multiple of M means a total profit of $M - 1$.

Reading 46: Financial Statement Forecasting in Equity Valuation. Notes: credguild.com/cfa/level-1/notes/equities/financial-statement-forecasting-in-equity-valuation/

Question 192 **Answer: B**

For a firm whose going-concern assumption is in doubt, equity value is the probability-weighted average of the going-concern equity value and the distress value to shareholders (here $10 million, already net of creditor claims).

$$\text{value} = 0.85 \times 46 + 0.15 \times 10 = 39.1 + 1.5 = \$40.6 \text{ million}$$

Why the other options are wrong

- **A.** $46.0 million is the going-concern value alone; it ignores the 15% probability of distress.
- **C.** $15.4 million swaps the probabilities, weighting the going-concern value by 15% and the distress value by 85%: $0.15 \times 46 + 0.85 \times 10$.

Key takeaway value = P(going concern) × going-concern value + P(distress) × distress sale value; the two probabilities sum to 1.

Reading 46: Financial Statement Forecasting in Equity Valuation. Notes: credguild.com/cfa/level-1/notes/equities/financial-statement-forecasting-in-equity-valuation/

Question 193 **Answer: C**

When most operating expenses grow faster than revenue, operating expenses take a larger share of each dollar of sales, so the operating profit margin is expected to fall. No calculation is needed.

Why the other options are wrong

- **A.** Gross profit margin depends only on revenue and COGS, and the other operating costs listed do not affect it. The stem does not say how fast COGS will grow, so a steady gross margin cannot be concluded.
- **B.** Net profit margin also depends on non-operating items such as interest income and expense, which are not given. A falling operating margin, if anything, pushes it down.

Key takeaway Compare growth rates. Revenue growing more slowly than operating costs means a lower operating margin; revenue growing faster means a higher one.

Reading 46: Financial Statement Forecasting in Equity Valuation. Notes: credguild.com/cfa/level-1/notes/equities/financial-statement-forecasting-in-equity-valuation/

Question 194 Answer: A

The PESTLE framework groups the political, economic, social, technological, legal and environmental factors that act on an industry from outside. Using it is the fourth step of industry and competitive analysis: examining external influences.

Why the other options are wrong

- **B.** Analyzing the industry structure (step 3) uses a framework such as Porter's five forces to judge competitive rivalry and profitability drivers. PESTLE belongs to a later step.
- **C.** Defining the industry (step 1) sets its scope: which products, regions and companies belong in it.

Key takeaway Porter's five forces serve step 3 (industry structure); PESTLE serves step 4 (external influences).

Reading 47: Industry and Competitive Analysis. Notes: credguild.com/cfa/level-1/notes/equities/industry-and-competitive-analysis/

Question 195 Answer: B

Using government or third-party data is the top-down approach. Its key limitation is that such data may lack the granularity or specific detail needed for niche analysis. Aggregate packaged-food revenue will not isolate a narrow segment such as gluten-free infant cereal.

Why the other options are wrong

- **A.** Industries with many private firms are where the top-down approach works best; being a poor fit for them is a limitation of the bottom-up approach, because private firms do not publish revenues.
- **C.** Difficulty isolating the revenue of multi-product companies is a limitation of the bottom-up approach, which adds up company revenues.

Key takeaway Top-down: good for industries of private/small firms, weak on granularity. Bottom-up: precise when large listed firms dominate, weak with multi-product or private firms.

Reading 47: Industry and Competitive Analysis. Notes: credguild.com/cfa/level-1/notes/equities/industry-and-competitive-analysis/

Question 196 Answer: C

The HHI is the sum of the squared market shares (in percent) of all participants. Here it is 3,250, well above the 1,800 level that is often interpreted as indicating high concentration.

$$HHI = \sum(\text{market share}_i)^2 = 50^2 + 20^2 + 15^2 + 10^2 + 5^2$$

$$= 2{,}500 + 400 + 225 + 100 + 25 = 3{,}250$$

Since $3{,}250 > 1{,}800$, the industry is highly concentrated.

Why the other options are wrong

- **A.** Low concentration would require many firms with small shares. Squaring the shares as decimals gives 0.325, which looks tiny but is simply the HHI divided by 10,000. It does not indicate low concentration.
- **B.** An HHI above 1,800 is often interpreted as high concentration, and at 3,250 the index is far above that level. Even the three largest firms alone give $50^2 + 20^2 + 15^2 = 3{,}125$, so the industry cannot be described as only moderately concentrated.

Key takeaway Square each share in percent and add. The maximum HHI is 10,000 (monopoly); an HHI above 1,800 is often interpreted as high concentration.

Reading 47: Industry and Competitive Analysis. Notes: credguild.com/cfa/level-1/notes/equities/industry-and-competitive-analysis/

Question 197 **Answer: A**

Disruptive innovation addresses an indistinct problem within a distinct domain and creates a new market or redefines an existing one. The domain here is medical testing, the exact problem is not yet distinct, and the model could reshape that market.

Why the other options are wrong

- **B.** Breakthrough innovation addresses a distinct problem across an indistinct domain and can affect many industries. This scenario stays within the distinct domain of medical testing.
- **C.** Sustaining innovation addresses a distinct problem within a distinct domain and improves existing products without redefining the market. Here the problem is indistinct and the market could be redefined.

Key takeaway Disruptive innovation = indistinct problem, distinct domain, and creation or redefinition of a market.

Reading 47: Industry and Competitive Analysis. Notes: credguild.com/cfa/level-1/notes/equities/industry-and-competitive-analysis/

Question 198 **Answer: C**

The last step of industry and competitive analysis is to evaluate the individual company's competitive strategy: its competitive advantage, position within its industry, and resources and capabilities. Company analysis therefore adds the firm's own strategy (e.g., cost leadership or differentiation), along with its products and financial condition, to the industry picture.

Why the other options are wrong

- **A.** The threat of substitutes is one of Porter's five forces and is assessed during industry analysis, which the analyst has already completed.
- **B.** The bargaining power of suppliers is also an industry-level competitive force, already covered by the industry analysis.

Key takeaway The five forces belong to industry analysis; competitive strategy belongs to company analysis.

Reading 48: Company Analysis: Past, Present, and Future. Notes: credguild.com/cfa/level-1/notes/equities/company-analysis-past-present-and-future/

Question 199 **Answer: A**

The serviceable market is the part of the total addressable market (TAM) that the company can actually reach, given its technical fit and geographic footprint. Both constraints must be applied to the TAM. Production capacity limits the obtainable market and plays no part here.

$$\text{Serviceable market} = \text{TAM} \times \text{technical fit} \times \text{geographic reach}$$

$$= \$2{,}400 \text{ million} \times 0.70 \times 0.55 = \$1{,}680 \text{ million} \times 0.55 = \$924 \text{ million}$$

The $300 million capacity cap defines the obtainable market, the share of the serviceable market Fennwick can realistically capture now.

Why the other options are wrong

- **B.** $1,320 million applies only the 55% licensing constraint ($2{,}400 \times 0.55$) and ignores that the pumps work in only 70% of the market.
- **C.** $1,680 million applies only the 70% technical fit ($2{,}400 \times 0.70$) and ignores the geographic (licensing) limit.

Key takeaway Start from the TAM, apply every reach constraint to get the serviceable market, then apply current scale to get the obtainable market. Capacity limits belong to the obtainable market.

Reading 48: Company Analysis: Past, Present, and Future. Notes: credguild.com/cfa/level-1/notes/equities/company-analysis-past-present-and-future/

Question 200 **Answer: A**

Net income is often volatile because it is affected by nonrecurring items, changes in capital structure and changing expenditures or tax rates. That makes it hard to compare across companies and to assess one company's profitability over time.

Why the other options are wrong

- **B.** Net income is less useful for start-ups and highly cyclical industries, which are often loss-making or swing widely; it is most useful in the growth, mature and decline stages.
- **C.** Net income is a standard GAAP/IFRS measure. EBITDA is the metric not recognized by these accounting standards.

Key takeaway Net income: most comprehensive but volatile and distorted by capital structure; EBITDA: not a GAAP/IFRS metric.

Reading 48: Company Analysis: Past, Present, and Future. Notes: credguild.com/cfa/level-1/notes/equities/company-analysis-past-present-and-future/

Question 201 **Answer: C**

FCFE is the cash left for shareholders after operating expenses, investment in noncash working capital and in long-term assets, and net borrowing. Because the $40 million is gross capital expenditure (before depreciation), depreciation and amortization is added back to net income as a noncash charge. Increases in noncash working capital and capital expenditures are uses of cash, and only net debt issued (new borrowing minus repayments) is a source.

$$\text{FCFE} = \text{NI} + \text{D\&A} - \text{capital expenditures} - \Delta\text{WC} + \text{net borrowing}$$

Net debt issued $= 25 - 10 = 15$.

$$\text{FCFE} = 54 + 18 - 40 - 9 + 15 = \$38 \text{ million}$$

Why the other options are wrong

- **A.** $56 million adds the $9 million increase in working capital instead of subtracting it ($54 + 18 + 9 - 40 + 15$).
- **B.** $48 million uses gross new borrowing of $25 million and ignores the $10 million repayment ($54 + 18 - 9 - 40 + 25$).

Key takeaway In FCFE, add back D&A only against gross capital expenditures; an increase in noncash working capital is a use of cash, and net borrowing means new borrowing minus repayments.

Reading 48: Company Analysis: Past, Present, and Future. Notes: credguild.com/cfa/level-1/notes/equities/company-analysis-past-present-and-future/

Question 202 **Answer: C**

Mature companies with stable, predictable cash flows rely more heavily on debt, such as issues of public or private bonds. Industries that need heavy long-term capital investment, such as utilities, rely in particular on long-term debt financing, so public bonds are the most likely main source.

Why the other options are wrong

- **A.** Common stock (equity capital) is the main source of financing for early-stage and growth firms with negative cash flow. A mature utility relies more on debt.
- **B.** Preferred stock is an equity security: although it pays fixed dividends, those dividends are not a contractual obligation and the shares usually do not mature. Stable cash flows and capital intensity point to greater use of debt rather than preferred equity.

Key takeaway Stable cash flow and capital intensity point to long-term debt.

Reading 48: Company Analysis: Past, Present, and Future. Notes: credguild.com/cfa/level-1/notes/equities/company-analysis-past-present-and-future/

Question 203 **Answer: A**

Although it appears first, the front page is written last because it summarizes the whole report: the buy/hold/sell recommendation and price target, the investment thesis, the company's name, ticker, sector, market capitalization and float, recent developments, and summary financial data. Each of these is covered in more detail later in the report.

Why the other options are wrong

- **B.** The recommendation and price target are the main items the front page shows.
- **C.** The front page carries only a summary of recent and forecast financial data; the detailed analysis is in the financial analysis and valuation section.

Key takeaway The front page summarizes the recommendation, target, thesis and key data. It is the first page read and the last written.

Reading 49: Equity Analyst Research Reports. Notes: credguild.com/cfa/level-1/notes/equities/equity-analyst-research-reports/

Question 204 **Answer: A**

An update is shorter than the initial report and concentrates on what has changed: newly released financial statements, a comparison of forecast with actual results (variance analysis), and any revisions to the valuation, risks and recommendation.

Why the other options are wrong

- **B.** Revenue and expense drivers are covered in the business-model section of the initial report, which introduces the company.
- **C.** The industry overview and competitive positioning are also part of the initial report.

Key takeaway Updates cover what is new: variance analysis, valuation changes, risk changes and the recommendation rationale.

Reading 49: Equity Analyst Research Reports. Notes: credguild.com/cfa/level-1/notes/equities/equity-analyst-research-reports/

Question 205 **Answer: C**

Presenting a view contrary to the market consensus requires a high degree of certainty, so sell-side recommendations are typically in line with the consensus (which is easy to observe on data platforms).

Why the other options are wrong

- **A.** Keeping conclusions confidential is characteristic of buy-side research, which is used internally.
- **B.** Activist short selling is a branch of buy-side research.

Key takeaway Sell side: published, standardized, usually consensus-aligned, mostly buy/hold. Buy side: confidential, customized.

Reading 49: Equity Analyst Research Reports. Notes: credguild.com/cfa/level-1/notes/equities/equity-analyst-research-reports/

Question 206 **Answer: C**

Economies of scale mean that operating costs rise more slowly than the 4% revenue growth, so operating profit grows faster than revenue and the margin widens above 37.5%.

Next year's revenue $= 48 \times 1.04 = \$49.92$ million. If costs grew 4% as well, costs $= \$31.2$ million and the margin stays $(49.92 - 31.2)/49.92 = 37.5\%$. With economies of scale, costs grow by less than 4% (say 2%: $30 \times 1.02 = \$30.6$ million), so the margin rises to $(49.92 - 30.6)/49.92 = 38.7\%$.

Why the other options are wrong

- **A.** A constant margin requires costs to grow at the same 4% rate as revenue, which contradicts the assumption of economies of scale.
- **B.** Capital investment is capitalized rather than expensed immediately, so it does not directly reduce operating profit; economies of scale point to a rising margin.

Key takeaway With the same revenue forecast, different cost growth gives different margins. Costs growing more slowly than revenue raise the margin; costs growing faster lower it.

Reading 49: Equity Analyst Research Reports. Notes: credguild.com/cfa/level-1/notes/equities/equity-analyst-research-reports/

Question 207 Answer: C

A longer lookback period gives a larger sample and a lower standard error of beta. However, most of the extra data now come from before Galloway's restructuring, when its business mix and leverage were different. The estimate will therefore describe past conditions rather than the company's future systematic risk.

Why the other options are wrong

- **A.** The standard error does fall with more observations, but a beta built largely on data from an obsolete business model and capital structure is a poorer guide to future risk.
- **B.** The mean-reversion adjustment is applied separately to the raw beta. With the usual fixed two-thirds weight on the raw beta, it does not change with the length of the lookback period.

Key takeaway A longer lookback period means less statistical noise but more stale data. After a major change in the business or capital structure, the stale data dominate, and a peer (pure-play) beta is usually the better choice.

Reading 50: The Capital Asset Pricing Model, Market Model, and Other Factor-Based Equity Models. Notes: credguild.com/cfa/level-1/notes/equities/the-capital-asset-pricing-model-market-model-and-other-factor-based-equity-models/

Question 208 Answer: A

A forward-looking estimate is implied by current prices. Rearranging the constant growth model, the expected market return equals the dividend yield plus the long-term growth rate. Subtracting the risk-free rate gives the implied market risk premium.

$$E(R_m) = \frac{D_1}{P_0} + g = 2.2\% + 5.5\% = 7.7\%$$

$$MRP = 7.7\% - 3.1\% = 4.6\%$$

Why the other options are wrong

- **B.** 7.7% is the expected return on the market index ($2.2\% + 5.5\%$). The risk-free rate has not been subtracted.
- **C.** 10.8% adds the risk-free rate to the dividend yield and growth instead of subtracting it: $7.7\% + 3.1\%$.

Key takeaway Forward $MRP = D_1/P_0 + g - R_f$.

Reading 50: The Capital Asset Pricing Model, Market Model, and Other Factor-Based Equity Models. Notes: credguild.com/cfa/level-1/notes/equities/the-capital-asset-pricing-model-market-model-and-other-factor-based-equity-models/

Question 209 Answer: C

In the four-factor model the size factor (SMB) is the return on a zero-cost portfolio that buys small-cap stocks and shorts large-cap stocks. Tidewater's negative size beta (−0.30) means it tends to earn a negative incremental return in periods when small caps outperform large caps, which marks it as a large-cap stock. The value factor is long high book-to-market (value) stocks and short low book-to-market (growth) stocks;

Tidewater's positive value beta (0.42) means it moves with value stocks. Together the two signs describe a large-cap value stock. The market beta (0.90) and momentum beta (−0.15) do not bear on the size or style classification.

Why the other options are wrong

- **A.** A small-cap stock would show a positive beta to the size factor, because it would move with the small-cap long side of that portfolio. Tidewater's size beta is negative (−0.30), so it behaves like a large-cap stock, even though its positive value beta does point to value.
- **B.** A growth stock would show a negative beta to the value factor, because it would move with the short (low book-to-market) side of that portfolio. Tidewater's value beta is positive (0.42), so the growth label is wrong, even though the large-cap part is right.

Key takeaway Size beta sign: + small, − large. Value beta sign: + value, − growth.

Reading 50: The Capital Asset Pricing Model, Market Model, and Other Factor-Based Equity Models. Notes: credguild.com/cfa/level-1/notes/equities/the-capital-asset-pricing-model-market-model-and-other-factor-based-equity-models/

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Fixed Income

Questions 210–280 · 19 readings

51 Bond Indenture

Question 210

A dealer's inventory includes the three fixed-income securities described below. Which one is classified as a money market security?

A A note issued three years ago that matures in four months.

B A bill issued today that matures in nine months.

C A bond issued ten months ago that matures in 14 months.

Question 211

Which of the following describes a bond that is trading at a premium?

A Its coupon rate is below its market yield.

B Its market price is above its par value.

C Its face value is below its redemption value.

Question 212

Government bond yields are 4.60% for 2 years, 4.10% for 7 years and 3.90% for 10 years. Ardent Rail's 7-year bond yields 5.85%. The spread on Ardent Rail's bond and the shape of the government yield curve are best described as:

A 1.25%; inverted yield curve.

B 1.75%; normal yield curve.

C 1.75%; inverted yield curve.

52 Zero Coupon Bond

Question 213

A bond with a par value of $2,000 carries a 6.8% coupon rate, paid semiannually, and is quoted at a price of 104.35. The dollar amount of each semiannual coupon is:

A $136.00.

B $70.96.

C $68.00.

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Question 214

Which statement about a sinking fund provision is *most accurate*?

A It obliges the issuer to deposit cash in a reserve that is used to repay the whole issue at maturity.

B It gives bondholders the right to sell their bonds back to the issuer at par each year.

C It obliges the issuer to retire part of the issue at scheduled dates before the final maturity.

Question 215

Priya Nair's main concern in her bond portfolio is reinvestment risk. Which of the following is she *least likely* to do?

A Choose a noncallable bond over an otherwise identical callable bond.

B Choose a low-coupon bond over a high-coupon bond of the same maturity.

C Rely on holding a coupon-paying bond to maturity to remove the risk.

Question 216

Which of the following bond issues best fits the definition of a Eurobond?

A A Mexican firm's Swiss franc bonds sold to investors in Switzerland.

B An Indian firm's Australian dollar bonds sold to investors in Singapore.

C A German firm's euro-denominated bonds sold to investors in Germany.

Question 217

Maren Holt buys a newly issued 8-year corporate bond at 106.40 per 100 of par. It pays a 6.5% annual coupon, and she plans to hold it to maturity. Her country taxes coupon interest as ordinary income and gives bonds issued at a premium the treatment that mirrors its original issue discount (OID) provision. Each year, the tax treatment of her coupons is *most likely* that:

A part of the 6.40 premium reduces the taxable portion of her coupon interest.

B the full 6.50 coupon is taxed as ordinary income, with no adjustment for the premium.

C part of the 6.40 premium is added to her taxable interest income.

53 Fixed-Income Issuance and Trading

Question 218

A bond database lets users group bonds along several dimensions: type of issuer (sector), credit quality, original maturity and currency. Which of the following groups results from sorting bonds by type of issuer?

A Bonds denominated in euros.

B Short-term money market securities.

C Bonds issued by special purpose entities.

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Question 219

An analyst compares bond market indexes with stock market indexes. Which of the following statements is *least accurate*?

A A bond index typically contains far more constituents than a stock index.

B A single company often has many bonds outstanding but only two or three share classes.

C The set of bonds in an index changes less often than the set of stocks in a stock index.

Question 220

Which of the following issuers *most likely* sells its new bonds through a public auction?

A A national government.

B A corporation.

C A municipality.

Question 221

Tamsin Hale wants to buy $2 million face value of a mid-sized corporate bond that was issued six years ago and now trades only infrequently. She is *most likely* to:

A submit a competitive bid in the issuer's next bond auction.

B buy from a dealer at its ask price, paying a relatively wide spread.

C buy on an exchange order book, paying a spread similar to an on-the-run sovereign bond.

54 Commercial Paper

Question 222

A corporate treasurer is reviewing the bank credit lines available to her company. Which of the following statements about these lines is *most accurate*?

A An uncommitted line typically carries a commitment fee on its unused portion.

B A committed line is the least reliable source of bank funding for a company.

C A revolving line often runs for years and usually comes with restrictive covenants.

Question 223

A bond dealer finances a position by entering a 60-day repurchase agreement. It delivers government bonds with a market value of $25,000,000. The lender requires an initial margin of 102% and a repo rate of 3.6%, using a 360-day year. The repurchase price the dealer will pay at the end of the term is *closest* to:

A $24,656,863.

B $24,647,000.

C $24,509,804.

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Question 224

An analyst splits the yield of each of three bonds into a benchmark rate and a credit spread. The spread accounts for 4% of Bond P's yield, 12% of Bond Q's yield and 45% of Bond R's yield. Which type of bond is Bond R *most likely* to be?

A A government bond.

B An investment-grade corporate bond.

C A high-yield corporate bond.

55 Treasury Bonds

Question 225

A bond analyst wants to group bonds according to the geography of their issuers. Which of the following labels fits that approach?

A Supranational bonds.

B Municipal bonds.

C Emerging market bonds.

Question 226

The central bank of Valdoria conducts much of its policy through a group of designated primary dealers. Which transaction is it *most likely* to carry out with them?

A Expansionary monetary policy by selling government bonds.

B Expansionary monetary policy by buying government bonds.

C Contractionary fiscal policy by cutting government spending.

Question 227

An analyst is building a government yield curve to use as the default-risk-free benchmark. The yields she uses are *most likely* taken from:

A older government bonds that have been outstanding for many years.

B the most recently issued government bonds of each maturity.

C highly rated supranational bonds.

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56 Yield to Maturity

Question 228

Five years ago, Kessler Freight Lines sold 25-year bonds with a 5.5% annual coupon, paid semiannually, to finance new rail terminals. The bonds now yield 5.2%. The price of the bonds per 100 of par is *closest* to:

A 103.70.

B 102.32.

C 96.39.

Question 229

With respect to a bond traded between coupon dates, accrued interest:

A is the interest earned from the last coupon date up to the settlement date.

B is the part of the next coupon that the seller has not earned.

C is discounted together with the other cash flows to obtain the full price.

Question 230

Holding all other features constant, which of the following statements about option-free bonds is *most accurate*?

A A long-maturity bond's price is more sensitive to yield changes than a short-maturity bond's price.

B A bond's price is more sensitive to increases in yield than to decreases in yield of the same size.

C A high-coupon bond's price is more sensitive to yield changes than a low-coupon bond's price.

Question 231

Marguerite Olsen wants to estimate the yield to maturity of a non-traded 7-year, annual-pay bond rated A. Actively traded A-rated bonds yield 4.10% at a 5-year maturity and 5.60% at a 10-year maturity. Using matrix pricing, the estimated YTM for the non-traded bond is *closest* to:

A 5.00%.

B 4.85%.

C 4.70%.

57 Credit Spread

Question 232

An analyst discounts every cash flow of a bond at one uniform rate, choosing the rate so that the total present value equals the bond's market price. This rate is the bond's:

A Yield to maturity.

B Current yield.

C Simple yield.

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Question 233

Delmont Paper's $1,000 par value bonds carry a 9% coupon rate and are quoted at a price of $962. The bonds' current yield is *closest* to:

A 8.66%.

B 9.00%.

C 9.36%.

Question 234

An analyst calculates a bond's yield to maturity using its scheduled coupon dates. Two of those dates fall on a Sunday, so the issuer will pay on the following Monday. The analyst then recalculates the yield using the dates on which the cash will actually be received. The recalculated figure is best described as:

A the true yield, slightly higher than the first figure.

B the street convention yield, slightly lower than the first figure.

C the true yield, slightly lower than the first figure.

Question 235

Which description of a callable bond's yield to worst is *most accurate*? It is the:

A yield the investor earns if the issuer defaults on its payments.

B lowest of the bond's yield to maturity and its yields to each call date.

C yield implied by the lowest price at which the bond has traded.

Question 236

A callable corporate bond has a zero-volatility spread of 160 basis points, and its embedded call option has a positive value. The bond's option-adjusted spread (OAS) is *most likely*:

A greater than 160 basis points.

B equal to 160 basis points.

C less than 160 basis points.

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58 Yield and Yield Spread Measures for Floating-Rate Instruments

Question 237

Carrow Logistics has a $5 million floating-rate note outstanding that pays an annual coupon equal to the market reference rate (MRR) plus a quoted margin of 110 basis points. Today is a reset date with exactly four years remaining to maturity. The MRR is 4.20%, and the discount margin the market currently requires on Carrow's credit is 70 basis points. Using the simplified approach that holds the MRR constant, the estimated value of the note is *closest* to:

A $5,071,084.

B $5,000,000.

C $4,929,572.

Question 238

Tenby Savings Bank issues a 91-day negotiable certificate of deposit. An investor who deposits $1,000 today receives $1,006.50 at maturity. The certificate's bond equivalent yield is *closest* to:

A 2.57%.

B 2.61%.

C 2.63%.

Question 239

A floating-rate note issued by Penhale Chemicals pays the market reference rate plus 85 basis points. Dealers now price the note at a discount margin of 55 basis points. Which of the following is the *most likely* explanation for the difference?

A The market reference rate has fallen since the note was issued.

B The issuer's credit quality has improved since the note was issued.

C The note is currently priced below its par value.

59 The Term Structure of Interest Rates: Spot, Par, and Forward Curves

Question 240

Which of the following statements about zero-coupon bonds and spot rates is *most accurate*?

A If a 4-year zero-coupon bond yields 5.2%, the 4-year spot rate is 1.3%.

B Spot rates are the same for every maturity on the term structure.

C At a positive yield, a zero-coupon bond's whole return is price appreciation.

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Question 241

Which of the following *best* describes how the arbitrage-free approach values an option-free bond?

A It discounts the cash flows at a set of spot rates that reflects the current term structure.

B It discounts the cash flows at the geometric average of the current spot rates.

C It discounts all the cash flows at a single discount rate.

Question 242

Government spot rates are 2.1% for one year, 2.9% for two years and 3.6% for three years (annual compounding). The coupon rate at which a 3-year annual-pay government bond would be priced at par (the 3-year par rate) is *closest* to:

A 2.87%.

B 3.57%.

C 3.60%.

Question 243

Current market rates (annual compounding) are as follows: the 1-year spot rate is 2.8%, the 1-year forward rate one year from now is 4.6%, and the 1-year forward rate two years from now is 6.2%. The price per 100 of par of a 3-year zero-coupon bond is *closest* to:

A 92.05.

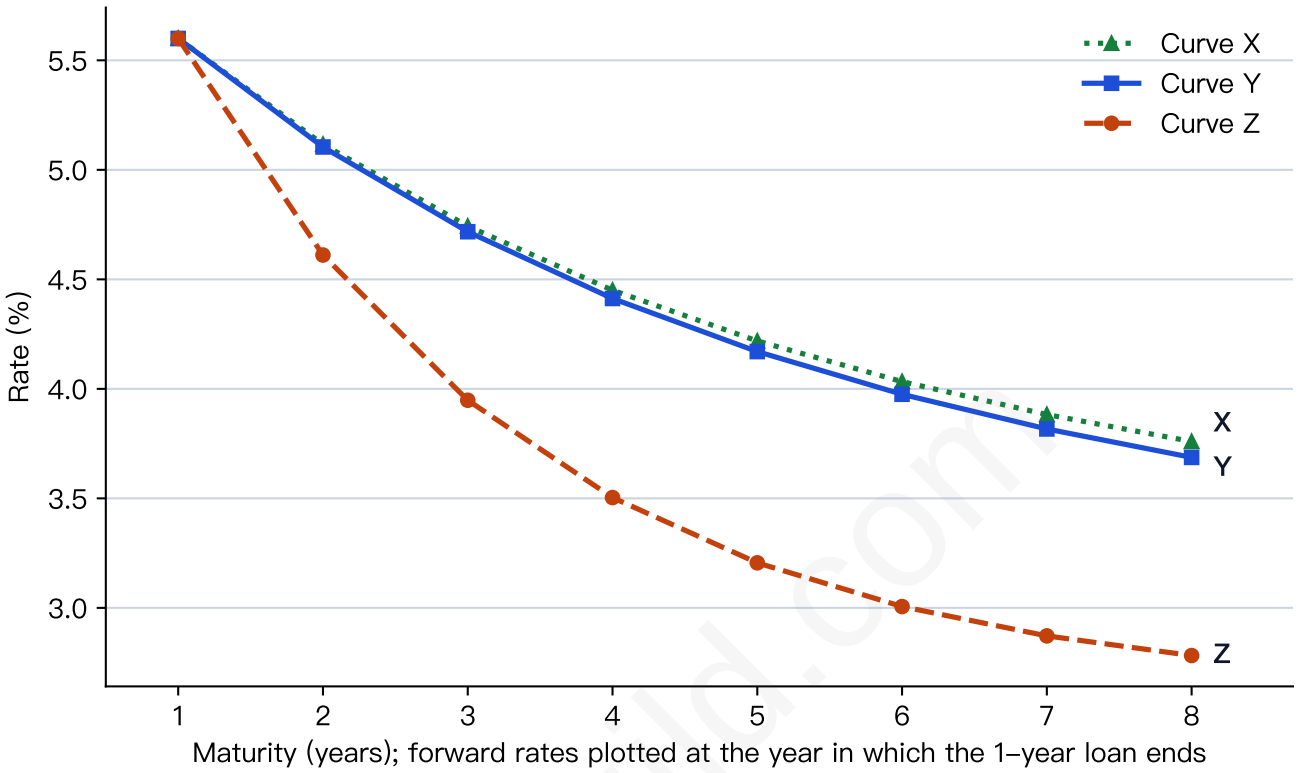
B 87.57.

C 83.49.

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Question 244

The chart below shows the spot curve, the par curve and the forward curve of 1-year rates, all derived from the same set of government bond prices (annual compounding). The curves are labeled only X, Y and Z.



Three curves derived from the same government bond prices

Curve X is *most likely* the:

A par curve.

B spot curve.

C forward curve.

60 Interest Rate Risk and Return

Question 245

A wealth manager tells a client: "When you invest in a bond for a given horizon, your return comes from the coupons you collect plus the difference between what you paid and what you receive when you sell the bond or it matures." The wealth manager's description is:

A incomplete, because it leaves out interest earned on reinvested coupons.

B complete, because it captures all sources of bond return.

C incomplete, because a bond held to maturity produces no capital gain or loss.

Question 246

Dmitri Volkov bought a 15-year, 4% semiannual-coupon bond at a yield to maturity of 5.2%. Four years later, he sells it for 92.10 per 100 of par. Per 100 of par, Volkov realizes:

A a capital gain of 2.06.

B a capital gain of 4.49.

C a capital loss of 7.90.

Question 247

A pension fund must make a single payment in eight years. The trustees want any change in the income from reinvesting coupons to be roughly offset by an opposite change in the price at which the bonds are sold at the horizon. Which measure of the bonds' duration should they set equal to eight years?

A Modified duration.

B Effective duration.

C Macaulay duration.

Question 248

Rafael Quintero calculates a Macaulay duration of 3.46 for a four-year, option-free corporate bond. The best interpretation of 3.46 is that it measures:

A the bond's price sensitivity to a change in interest rates.

B the average time until the bond's cash flows are received.

C the time the investor needs to recover his principal.

61 Macaulay Duration

Question 249

A 7-year, option-free, annual-pay bond with a 5% coupon is priced at $944.18 for each $1,000 of face value. Its Macaulay duration is 6.0444. Its modified duration is *closest* to:

A 5.868.

B 5.757.

C 5.702.

Question 250

An analyst uses modified duration alone to estimate how an option-free bond's price will respond to a 150 basis point decline in its yield. Compared with the actual price change, the estimate will *most likely*:

A understate the price increase.

B overstate the price increase.

C match the price increase closely.

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Question 251

A portfolio holds $6 million par value of an option-free bond with a full price of 98.75 per 100 of par and an annual modified duration of 5.4. If the bond's yield to maturity rises by 15 basis points, the estimated change in the value of the position, based on its money duration, is *closest* to:

A −$479,925.

B −$48,600.

C −$47,993.

Question 252

An option-free 20-year bond trades at a premium to par. If market interest rates rise, the bond's modified duration:

A increases.

B does not change.

C decreases.

Question 253

A 6-year floating-rate note resets its coupon to the market reference rate every six months. The most recent reset was two months ago. The note's Macaulay duration is *closest* to:

A 0.33 years.

B 0.50 years.

C 6.00 years.

62 Bond Convexity

Question 254

A 1.5-year option-free bond pays an 8% coupon semiannually and is priced to yield 6.00%. Using the present values of its cash flows as weights, its annualized convexity is *closest* to:

A 2.69.

B 5.37.

C 10.75.

Question 255

Three option-free bonds are priced at the same yield to maturity. Which one is *most likely* to have the highest convexity?

A A 10-year bond with a 7% coupon.

B A 25-year bond with a 2% coupon.

C A 10-year bond with a 2% coupon.

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Question 256

Which statement about an option-free bond with positive convexity is *most accurate*?

A A given fall in yield raises its price by more than the same rise in yield lowers it.

B An increase in its yield leads to an increase in its price.

C Its price rises and falls at a faster rate than its yield changes.

Question 257

A portfolio holds the three option-free bonds shown below (prices per 100 of par).

Portfolio holdings

Bond	Par value ($)	Price (per 100 of par)	Duration
Bond 1	1,000,000	112	3.1
Bond 2	1,200,000	86	10.8
Bond 3	800,000	101	6.0

Using the weighted-average method, the portfolio's duration is *closest* to:

A 6.58.

B 6.63.

C 6.95.

63 Curve-Based and Empirical Fixed-Income Risk Measures

Question 258

Effective duration is a better measure than modified duration of a bond's price sensitivity to interest rates when:

A the yield curve shifts in a nonparallel way.

B the bond has an embedded option.

C the bond has a long maturity and a low coupon rate.

Question 259

Interest rates fall by 65 basis points. Given a modified duration of 6.72 and a convexity of 55.30, the estimated percentage change in the bond's price is *closest* to:

A 4.48%.

B 4.37%.

C 4.25%.

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Question 260

A key rate duration measures the sensitivity of a bond's value to a:

A parallel shift in the benchmark yield curve.

B change in the bond's expected cash flows.

C change in the benchmark yield at one specific maturity.

Question 261

To estimate the interest rate sensitivity of a corporate bond fund, an analyst regresses the fund's past returns on past changes in benchmark government yields. The resulting measure is *best* described as:

A modified duration.

B analytical duration.

C empirical duration.

64 Credit Risk

Question 262

To judge how likely Morrow Chemicals is to default, an analyst calculates its EBIT margin, its EBIT-to-interest expense ratio, and its debt-to-EBITDA ratio. This analysis is *most likely* an evaluation of the company's:

A capacity.

B collateral.

C covenants.

Question 263

The trustees of the Linwood Teachers' Pension Plan propose to select corporate bonds using agency credit ratings alone. Which of the following is a limitation of relying solely on credit ratings?

A Agencies rate bond issuers but not individual bond issues.

B Bond prices and credit spreads can move well before a rating changes.

C Ratings let investors compare credit risk across industries and bond types.

Question 264

A portfolio manager at Corvel Asset Management expects the economy to move out of recession into a strong recovery over the coming year. Which change to her bond portfolio is *most appropriate*?

A Buy corporate bonds and sell government bonds.

B Sell corporate bonds and buy government bonds.

C Replace lower-rated corporate bonds with higher-rated ones.

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Question 265

A corporate bond has a modified duration of 6.2 and a convexity of 52. If its credit spread widens by 60 basis points while benchmark yields are unchanged, the estimated percentage change in the bond's full price is *closest* to:

A −3.63%.

B −3.72%.

C −3.81%.

65 Credit Analysis for Government Issuers

Question 266

Salvarra's central bank operates independently of the government and has a credible record of adjusting interest rates and the money supply to keep inflation low. In a sovereign credit analysis of Salvarra, this strength is best classified under which qualitative factor?

A Fiscal flexibility.

B External status.

C Monetary effectiveness.

Question 267

An analyst compares the fiscal strength of two sovereign issuers using the following data.

Selected fiscal data for two sovereign issuers (USD billions)

Item	Kestria	Varnholm
Nominal GDP	1,200	500
Government debt	780	290
Government revenue	420	145
Annual interest expense on government debt	29.4	13.05

Based on the debt burden (government debt to GDP) and debt affordability (interest expense to government revenue), which statement is *most accurate*?

A Kestria is stronger on both debt burden and debt affordability.

B Varnholm has the lighter debt burden, but Kestria has better debt affordability.

C Varnholm is stronger on both debt burden and debt affordability.

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Question 268

The regional government of Varenna sets up a transit authority to build a light-rail line. The authority issues bonds whose interest and principal are to be paid from the line's fare revenue. The national government also guarantees the bonds as a backstop. These bonds are *best* described as:

A general obligation bonds.

B revenue bonds.

C sovereign bonds.

66 Credit Analysis for Corporate Issuers

Question 269

All else equal, which of the following would indicate *higher* credit quality for a corporate issuer?

A Higher leverage

B Higher liquidity

C Lower coverage of debt service

Question 270

Tamworth Mills is being liquidated. It has three classes of debt outstanding: senior subordinated notes, first mortgage bonds and senior unsecured notes. Which list ranks them from highest to lowest priority of claims?

A First mortgage bonds, senior unsecured notes, senior subordinated notes.

B Senior unsecured notes, first mortgage bonds, senior subordinated notes.

C First mortgage bonds, senior subordinated notes, senior unsecured notes.

Question 271

How does an issuer credit rating *most likely* differ from an issue credit rating?

A An issuer credit rating reflects the borrower's overall creditworthiness.

B An issue credit rating is always set below the issuer credit rating.

C An issue credit rating is the one based on senior unsecured debt.

67 Fixed-Income Securitization

Question 272

Kestrel Savings Bank funds its mortgage lending mainly with customer deposits. It sells $400 million of its mortgages to a special purpose entity, which pays for them with the proceeds of an ABS issue. As a direct result of the sale, which item on Kestrel's balance sheet is *least likely* to change?

A Mortgage loans.

B Customer deposits.

C Cash.

Question 273

Brenlow Bank sells a pool of its auto loans to a newly created trust, which issues asset-backed securities (ABS). The senior ABS receive a higher credit rating than Brenlow's own senior bonds. The *most likely* reason is that:

A ABS are always investment grade, whereas bank bonds need not be.

B the trust is a special purpose entity that is bankruptcy remote from Brenlow.

C the ABS rank senior to Brenlow's bonds if Brenlow goes bankrupt.

Question 274

An investor buys ABS backed by a pool of consumer loans originated by Farrow Bank. Which of the following risks does the investor *most likely* bear?

A The credit risk of Farrow Bank's other lending businesses.

B The credit risk of the borrowers in the collateral pool.

C The risk that Farrow Bank's creditors seize the collateral.

68 Asset-Backed Security (ABS) Instrument and Market Features

Question 275

Compared with otherwise similar asset-backed securities, covered bonds issued by Eskdale Bank *most likely* offer investors:

A recourse to the issuing bank.

B higher yields.

C lower credit quality.

Question 276

Halden Card Trust issued asset-backed securities backed by credit card receivables, and the securities are still in their lockout period. Which event would *most likely* cause the ABS holders to start receiving principal payments ahead of schedule?

A Cardholders repay a larger share of their balances each month.

B A trigger in the early (rapid) amortization provision is breached.

C The interest rate charged on the card balances reaches its cap.

Question 277

Which feature *most clearly* distinguishes a collateralized debt obligation (CDO) from most other asset-backed securities?

A It is issued through a special purpose vehicle.

B A collateral manager actively trades the securities in its collateral pool.

C It is structured with senior and subordinated tranches.

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69 Mortgage-Backed Security (MBS) Instrument and Market Features

Question 278

A sequential-pay CMO has two tranches. Class J receives all principal payments until it is fully repaid, and principal then goes to Class K. Relative to Class K, Class J has:

A less contraction risk and more extension risk.

B more contraction risk and more extension risk.

C more contraction risk and less extension risk.

Question 279

The Linwell pass-through security is backed by the three mortgages shown below. Servicing and guarantee fees total 0.50% a year.

Mortgages in the Linwell pass-through pool

Mortgage	Current balance ($ thousands)	Mortgage rate	Remaining term (years)
1	120	5.00%	22
2	80	6.50%	15
3	200	5.75%	27

The pass-through rate on the security is *closest* to:

A 5.18%.

B 5.25%.

C 5.68%.

Question 280

When comparing the loans backing different CMBS pools, which combination of credit ratios *most likely* indicates better credit quality?

A Higher DSC ratios and lower LTV ratios.

B Lower DSC ratios and higher LTV ratios.

C Higher DSC ratios and higher LTV ratios.

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FIXED INCOME

Answers and explanations

Answer key: 210. B · 211. B · 212. C · 213. C · 214. C · 215. C · 216. B · 217. A · 218. C · 219. C · 220. A · 221. B · 222. C · 223. A · 224. C · 225. C · 226. B · 227. B · 228. A · 229. A · 230. A · 231. C · 232. A · 233. C · 234. C · 235. B · 236. C · 237. A · 238. B · 239. B · 240. C · 241. A · 242. B · 243. B · 244. A · 245. A · 246. A · 247. C · 248. B · 249. C · 250. A · 251. C · 252. C · 253. A · 254. A · 255. B · 256. A · 257. A · 258. B · 259. A · 260. C · 261. C · 262. A · 263. B · 264. A · 265. A · 266. C · 267. B · 268. B · 269. B · 270. A · 271. A · 272. B · 273. B · 274. B · 275. A · 276. B · 277. B · 278. C · 279. A · 280. A

Question 210 **Answer: B**

Money market securities are those with an original maturity of one year or less. The bill issued today with nine months to maturity has an original maturity of nine months, so it is a money market security.

Why the other options are wrong

- **A.** The note had an original maturity of about three years and four months. Its short remaining maturity does not change its classification: it is a capital market security.
- **C.** The bond's original maturity is 10 + 14 = 24 months, which is longer than one year, so it is a capital market security.

Key takeaway Money market and capital market securities are classified by original maturity at issuance. The time remaining does not change the classification.

Reading 51: Fixed-Income Instrument Features. Notes: credguild.com/cfa/level-1/notes/fixed-income/bond-indenture/

Question 211 **Answer: B**

A bond trades at a premium when its price exceeds its par value. For a fixed-coupon bond this happens when the market yield is below the coupon rate.

Why the other options are wrong

- **A.** A coupon rate below the market yield means the bond's price is below par, so the bond trades at a discount.
- **C.** A bond's redemption value can differ from its face value under its terms, but that difference does not determine whether it trades at a premium. A premium means market price is above par.

Key takeaway A premium bond has a price above par (yield below the coupon rate). A discount bond has a price below par (yield above the coupon rate).

Reading 51: Fixed-Income Instrument Features. Notes: credguild.com/cfa/level-1/notes/fixed-income/bond-indenture/

Question 212 **Answer: C**

The spread is the extra yield over a government bond of the same maturity: 5.85% − 4.10% = 1.75%. Government yields fall as maturity lengthens, so the curve slopes downward, which is an inverted yield curve.

$$\text{Spread} = 5.85\% - 4.10\% = 1.75\% \ (175 \text{ bps})$$

Yields: 2-year 4.60% > 7-year 4.10% > 10-year 3.90%, so the government curve slopes downward (inverted).

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Why the other options are wrong

- **A.** 1.25% measures the spread against the 2-year government yield (5.85% − 4.60%); the benchmark must have the same 7-year maturity.
- **B.** The spread is right, but a curve on which longer maturities yield less is inverted; a normal yield curve slopes upward.

Key takeaway Match maturities when measuring a spread. An upward-sloping curve is normal, and a downward-sloping curve is inverted.

Reading 51: Fixed-Income Instrument Features. Notes: credguild.com/cfa/level-1/notes/fixed-income/bond-indenture/

Question 213 **Answer: C**

Coupons are based on par value, and the market price plays no part. Half of the annual coupon is paid every six months.

$$\text{Semiannual coupon} = \frac{\text{coupon rate} \times \text{par}}{2} = \frac{0.068 \times \$2{,}000}{2} = \$68.00$$

The quoted price of 104.35 (104.35% of par) does not enter the calculation.

Why the other options are wrong

- **A.** $136.00 is the full annual coupon; it is not divided by two for semiannual payments.
- **B.** $70.96 applies the coupon rate to the market price ($2{,}000 \times 1.0435$) instead of to the par value.

Key takeaway The price quote is irrelevant to the coupon amount. Each coupon equals the coupon rate times par, divided by the number of payments per year.

Reading 52: Fixed-Income Cash Flows and Types. Notes: credguild.com/cfa/level-1/notes/fixed-income/zero-coupon-bond/

Question 214 **Answer: C**

A sinking fund provision requires the issuer to retire a portion of the bond issue at specified times over its life. Typically the bond trustee redeems a set amount of principal each year from holders chosen at random. Principal is therefore repaid through a series of payments rather than all at maturity.

Why the other options are wrong

- **A.** The bonds are actually retired on the schedule. The provision does not simply build up cash to repay the whole issue at maturity.
- **B.** A right to sell bonds back to the issuer at a set price is a put option, which belongs to the bondholder. A sinking fund is an obligation of the issuer, and the bonds redeemed are chosen by the trustee, not by the holders.

Key takeaway A sinking fund retires part of the issue on a schedule over its life, which reduces the principal outstanding at maturity.

Reading 52: Fixed-Income Cash Flows and Types. Notes: credguild.com/cfa/level-1/notes/fixed-income/zero-coupon-bond/

Question 215 **Answer: C**

Holding a coupon bond to maturity does not remove reinvestment risk, because every coupon received must still be reinvested at whatever rates then prevail. An investor focused on reinvestment risk would therefore not rely on this.

Why the other options are wrong

- **A.** A callable bond may be redeemed early, typically after rates have fallen, forcing reinvestment at lower yields. Preferring a noncallable bond reduces reinvestment risk, so she is likely to do this.
- **B.** Smaller coupons mean less cash to reinvest, so a low-coupon bond carries less reinvestment risk. She is likely to prefer it.

Key takeaway Reinvestment risk rises with coupon size and with call features; only a zero-coupon bond held to maturity avoids it.

Reading 52: Fixed-Income Cash Flows and Types. Notes: credguild.com/cfa/level-1/notes/fixed-income/zero-coupon-bond/

Question 216 **Answer: B**

A Eurobond is issued outside the jurisdiction of any one country and can be issued in any currency. An Indian firm's Australian dollar bonds sold to investors in Singapore are not issued in Australia's or India's domestic market, so they fit the Eurobond definition. The "Euro" prefix does not mean the bonds are denominated in euros, sold in Europe or issued by a European firm.

Why the other options are wrong

- **A.** A foreign issuer selling bonds in Switzerland, in Swiss francs, to Swiss investors is issuing a foreign bond.
- **C.** A German issuer selling euro bonds to investors in its home market is issuing a domestic bond; being denominated in euros does not make it a Eurobond.

Key takeaway A Eurobond is issued outside the jurisdiction of any one country and can be in any currency. The "Euro" prefix says nothing about the currency, the market of sale or the issuer's home country.

Reading 52: Fixed-Income Cash Flows and Types. Notes: credguild.com/cfa/level-1/notes/fixed-income/zero-coupon-bond/

Question 217 **Answer: A**

Under an OID provision, part of the discount on a bond issued below par is taxed each year as interest income. Some jurisdictions treat bonds issued at a premium symmetrically: part of the premium is used to reduce the taxable portion of the coupon interest. Holt paid 6.40 above par and will receive only par at maturity, so in her country part of that premium offsets her 6.50 coupon each year before tax.

Why the other options are wrong

- **B.** Taxing the full coupon with no adjustment ignores the premium treatment stated in the stem. Her country lets part of the premium reduce the taxable portion of the coupons.
- **C.** Adding part of the price difference to taxable interest each year is the OID treatment of a bond issued at a discount. For a bond issued at a premium the adjustment runs the other way and reduces taxable coupon interest.

Key takeaway With an OID provision, part of a discount is taxed each year as interest income. With the symmetric premium treatment, part of a premium reduces the taxable portion of the coupons.

Reading 52: Fixed-Income Cash Flows and Types. Notes: credguild.com/cfa/level-1/notes/fixed-income/zero-coupon-bond/

Question 218 Answer: C

Classification by type of issuer (sector) separates governments (sovereign and non-sovereign), corporates, and special purpose entities issuing asset-backed securities. Bonds issued by special purpose entities are grouped by who the issuer is, so this group results from sorting by issuer. The other two groups come from the currency and original-maturity dimensions.

Why the other options are wrong

- **A.** Bonds denominated in euros are grouped by currency, which is one of the other ways to classify bonds. Any type of issuer can sell bonds in euros.
- **B.** Money market securities are defined by original maturity (one year or less). Any type of issuer can sell them.

Key takeaway Sort the labels: type of issuer (governments, corporates, special purpose entities issuing ABSs), credit quality, original maturity (money market, intermediate, long-term), and other dimensions such as currency, issuer geography and ESG features.

Reading 53: Fixed-Income Issuance and Trading. Notes: credguild.com/cfa/level-1/notes/fixed-income/fixed-income-issuance-and-trading/

Question 219 Answer: C

The bond universe is constantly changing. Bonds mature, are called or retired through sinking funds, and new issues come to market all the time. Bond indexes therefore have higher turnover than stock indexes, so the claim that their membership changes less often is inaccurate. This instability is one reason bond indexes are harder to build and track.

Why the other options are wrong

- **A.** This is accurate. Because issuers have many bonds each, bond indexes hold many more constituents than stock indexes, which is why tracker funds use sampling.
- **B.** This is accurate. It is the reason bond indexes have so many more constituents than equity indexes.

Key takeaway Bond vs. stock indexes: more constituents, higher turnover, and weights driven by issuance (large sovereign weights).

Reading 53: Fixed-Income Issuance and Trading. Notes: credguild.com/cfa/level-1/notes/fixed-income/fixed-income-issuance-and-trading/

Question 220 Answer: A

Public offerings of government debt commonly take place through auctions, and sovereign (national government) issuers sell their bonds through regular public auctions. Corporations normally issue through investment banks, in underwritten or best-efforts offerings, or through private placements.

Why the other options are wrong

- **B.** Corporate bonds are usually sold through an investment bank on an underwritten or best-efforts basis, or placed privately with a small group of investors.
- **C.** A municipality is a local, non-sovereign government. Regular public auctions are the standard method for sovereign (national government) debt, so a national government is the more likely auction issuer.

Key takeaway Auctions are the standard route for government (sovereign) debt.

Reading 53: Fixed-Income Issuance and Trading. Notes: credguild.com/cfa/level-1/notes/fixed-income/fixed-income-issuance-and-trading/

Question 221 **Answer: B**

A bond that was issued years ago is bought in the secondary market, where previously issued bonds trade among investors. Although some electronic platforms and exchange-based trading exist, most secondary bond trading still takes place in the dealer, or over-the-counter (OTC), market: dealers post bid (purchase) and ask (selling) prices, so a buyer pays the ask. The dealer's spread depends on liquidity, and for a smaller, older (seasoned), infrequently traded corporate issue it is typically 10 to 20 basis points or more.

Why the other options are wrong

- **A.** Auctions are a primary-market method for selling newly issued bonds, used mainly by governments. A bond issued six years ago is already outstanding, so it must be bought from another investor in the secondary market, and corporations usually issue through underwritten or best-efforts offerings rather than auctions anyway.
- **C.** Exchange trading dominates for shares, while most secondary bond trading is OTC. Spreads of a fraction of a basis point are found only on very liquid bonds, such as on-the-run developed-market sovereigns and bonds of frequent high-quality corporate issuers. A seasoned, thinly traded issue is quoted much wider.

Key takeaway Previously issued bonds trade mainly OTC through dealers, and the buyer pays the ask. The dealer's spread widens as liquidity falls, from a fraction of a basis point for on-the-run sovereigns to 10–20 bp or more for seasoned corporates.

Reading 53: Fixed-Income Issuance and Trading. Notes: credguild.com/cfa/level-1/notes/fixed-income/fixed-income-issuance-and-trading/

Question 222 **Answer: C**

A revolving (operating) line of credit is the most reliable source of bank funding. It is typically arranged for a longer term than a committed line, sometimes several years, and because the bank is committed for that long it usually imposes restrictive covenants that oblige the borrower to take, or to avoid, specified actions, much as a bond indenture does. Its fees and rates are similar to those of a committed line.

Why the other options are wrong

- **A.** An uncommitted line is flexible and usually has no fees beyond interest on the amounts drawn, because the bank can decline to lend if conditions change. Commitment fees (about 50 bp on the full or unused amount) are charged on committed lines, and revolvers carry similar fees.
- **B.** The least reliable form is the uncommitted line, which the bank can decline to honor. A committed line binds the bank for the stated period, although the bank may decline to renew it at maturity (renewal risk).

Key takeaway Reliability rises from uncommitted to committed to revolving lines. Commitment fees apply to committed lines and revolvers, and revolvers usually add restrictive covenants over a multiyear term.

Reading 54: Fixed-Income Markets for Corporate Issuers. Notes: credguild.com/cfa/level-1/notes/fixed-income/commercial-paper/

Question 223 **Answer: A**

The loan (purchase price) equals the collateral's market value divided by the initial margin. The repurchase price is the loan plus interest at the repo rate, de-annualized over the 60-day term on a 360-day basis.

$$\text{purchase price} = \frac{25{,}000{,}000}{1.02} = \$24{,}509{,}804$$

$$\text{repurchase price} = 24{,}509{,}804 \times \left(1 + 0.036 \times \frac{60}{360}\right) = 24{,}509{,}804 \times 1.006 = \$24{,}656{,}863$$

Repo interest $= 24{,}656{,}863 - 24{,}509{,}804 = \$147{,}059$. Haircut $= 1 - 1/1.02 = 1.96\%$.

Why the other options are wrong

- **B.** $24,647,000 treats the 2% margin as a straight 2% deduction ($25{,}000{,}000 \times 0.98$) instead of dividing by 1.02, then adds interest. The haircut is $1 - 1/1.02 = 1.96\%$.
- **C.** $24,509,804 is the purchase price (the amount borrowed today). It omits the repo interest that must be paid on the repurchase date.

Key takeaway The loan equals the collateral value divided by the initial margin. The repurchase price equals the loan times $(1 + \text{repo rate} \times \text{days}/360)$.

Reading 54: Fixed-Income Markets for Corporate Issuers. Notes: credguild.com/cfa/level-1/notes/fixed-income/commercial-paper/

Question 224 **Answer: C**

For investment-grade bonds, yields are driven mostly by benchmark (sovereign) rates, so the credit spread is a small part of the yield. For high-yield bonds the credit spread is a much larger part of the yield. The bond whose spread is almost half its yield is the high-yield bond.

Why the other options are wrong

- **A.** A government bond is the benchmark itself, so its credit spread share would be close to zero, the smallest of the three.
- **B.** Investment-grade yields are largely tied to benchmark rates, so their spreads are a small share of yield, like Bond P or Bond Q.

Key takeaway The larger the credit spread's share of the yield, the lower the credit quality.

Reading 54: Fixed-Income Markets for Corporate Issuers. Notes: credguild.com/cfa/level-1/notes/fixed-income/commercial-paper/

Question 225 **Answer: C**

Grouping bonds as developed market or emerging market bonds classifies them by the issuer's geography. The label emerging market bonds belongs to this approach.

Why the other options are wrong

- **A.** Supranational bonds are a category of issuer: international institutions owned by several governments. The label is not geographic.
- **B.** Municipal bonds are grouped by type of issuer (local governments), and sometimes by tax status.

Key takeaway Geographic labels are developed market and emerging market. Issuer-type labels are sovereign, municipal, agency, supranational and corporate.

Reading 55: Fixed-Income Markets for Government Issuers. Notes: credguild.com/cfa/level-1/notes/fixed-income/treasury-bonds/

Question 226 **Answer: B**

Primary dealers act as counterparties when the central bank buys or sells government securities to carry out monetary policy. When the central bank buys securities, it pays cash into the banking system, which adds reserves and is expansionary.

Why the other options are wrong

- **A.** Selling government bonds drains reserves from the banking system. That is contractionary.
- **C.** Government spending and taxation are fiscal policy. The government sets them, and they are not executed through the central bank's primary dealers.

Key takeaway A central bank purchase of securities is expansionary, and a sale is contractionary. Primary dealers are the central bank's counterparties. Fiscal policy is not a central bank tool.

Reading 55: Fixed-Income Markets for Government Issuers. Notes: credguild.com/cfa/level-1/notes/fixed-income/treasury-bonds/

Question 227 **Answer: B**

Government bonds trade mainly in OTC dealer markets, and trading is most active, with the most informative prices, in the most recently issued (on-the-run) bond of each maturity. Their yields are therefore used as the default-risk-free benchmark yields for building yield curves.

Why the other options are wrong

- **A.** Older (seasoned) issues trade less actively, so their prices are less informative for benchmark purposes.
- **C.** Supranational bonds are high quality but are not the sovereign default-risk-free benchmark. Benchmark curves are built from the sovereign's own on-the-run issues.

Key takeaway Benchmark (risk-free) yield curves are built from on-the-run government bonds.

Reading 55: Fixed-Income Markets for Government Issuers. Notes: credguild.com/cfa/level-1/notes/fixed-income/treasury-bonds/

Question 228 **Answer: A**

Only the remaining 20 years (40 semiannual periods) of cash flows matter. Because the 5.5% coupon exceeds the 5.2% yield, the bond trades at a premium.

Remaining maturity $= 25 - 5 = 20$ years, so $N = 40$; $PMT = 5.5/2 = 2.75$; periodic yield $= 5.2\%/2 = 2.6\%$.

$$P = \sum_{t=1}^{40} \frac{2.75}{1.026^{t}} + \frac{100}{1.026^{40}} = 103.70$$

BA II Plus (P/Y = C/Y = 1, END mode; clear with `[2ND] [CLR TVM]`): `N = 40; I/Y = 2.6; PMT = 2.75; FV = 100; CPT PV = −103.70`.

Why the other options are wrong

- **B.** 102.32 uses $N = 20$, the number of remaining years, as the number of semiannual periods. It should be 40.
- **C.** 96.39 swaps the coupon and the yield (a 5.2% coupon discounted at 2.75% per half-year). This produces a discount price for what is actually a premium bond.

Key takeaway Count the remaining maturity from today and convert it to periods. The issue date does not matter.

Reading 56: Fixed-Income Bond Valuation: Prices and Yields. Notes: credguild.com/cfa/level-1/notes/fixed-income/yield-to-maturity/

Question 229 **Answer: A**

Accrued interest is the seller's share of the next coupon: the coupon times the fraction of the coupon period from the previous coupon date to the settlement date. The buyer pays it to the seller as part of the full price because the buyer will receive the whole next coupon.

$$AI = \frac{t}{T} \times PMT$$

where t = days from the last coupon to settlement and T = days in the coupon period.

Why the other options are wrong

- **B.** The part of the next coupon that the seller has not earned belongs to the buyer. Accrued interest is the part the seller has earned.
- **C.** Accrued interest is not a separate cash flow that gets discounted. The full price is the PV on the last coupon date compounded forward to settlement, and accrued interest is then subtracted from it to get the flat price.

Key takeaway Accrued interest = seller's earned share of the current coupon; full price = flat price + AI.

Reading 56: Fixed-Income Bond Valuation: Prices and Yields. Notes: credguild.com/cfa/level-1/notes/fixed-income/yield-to-maturity/

Question 230 **Answer: A**

Other things equal, a longer maturity means more of the bond's value comes from distant cash flows, so its price reacts more to a given change in yield. Low-coupon bonds are also more sensitive than high-coupon bonds.

Sensitivity summary for option-free bonds:

- A longer maturity makes the price more sensitive.
- A lower coupon makes the price more sensitive.
- Because of convexity, the price gain from a yield decrease exceeds the price loss from an equal yield increase.

Why the other options are wrong

- **B.** Because the price-yield relationship is convex, prices are more sensitive to yield decreases than to equal yield increases: a bond's price sensitivity rises as yields fall.

- **C.** The relationship runs the other way. The low-coupon bond is the more sensitive one, because a larger share of its value comes from the principal paid at maturity.

Key takeaway Long maturity and low coupon = high price sensitivity; convexity favors yield decreases.

Reading 56: Fixed-Income Bond Valuation: Prices and Yields. Notes: credguild.com/cfa/level-1/notes/fixed-income/yield-to-maturity/

Question 231 **Answer: C**

Matrix pricing interpolates linearly between the yields of comparable traded bonds with the same rating. The 7-year maturity is two-fifths of the way from 5 to 10 years.

$$YTM_7 = 4.10\% + \frac{7-5}{10-5}(5.60\% - 4.10\%) = 4.10\% + 0.4 \times 1.50\% = 4.70\%$$

Why the other options are wrong

- **A.** 5.00% applies the two-fifths weight from the wrong end ($5.60\% - 0.4 \times 1.50\%$).
- **B.** 4.85% is the simple average of the two yields. That would be right only if 7 years were the midpoint between 5 and 10 years.

Key takeaway Interpolate in proportion to the distance from the shorter maturity.

Reading 56: Fixed-Income Bond Valuation: Prices and Yields. Notes: credguild.com/cfa/level-1/notes/fixed-income/yield-to-maturity/

Question 232 **Answer: A**

The yield to maturity is the single discount rate that sets the present value of all of a bond's cash flows equal to its price. It is the bond's internal rate of return.

Why the other options are wrong

- **B.** Current yield is the annual coupon divided by the price; it does not discount any cash flows.
- **C.** Simple yield adds straight-line amortization of a discount (or subtracts that of a premium) to the coupon and divides by the price; it is not a discount rate.

Key takeaway YTM = IRR of the bond's cash flows at the market price.

Reading 57: Yield and Yield Spread Measures for Fixed-Rate Bonds. Notes: credguild.com/cfa/level-1/notes/fixed-income/credit-spread/

Question 233 **Answer: C**

Current yield is the annual cash coupon divided by the bond's price. It considers only coupon income.

Annual coupon $= 0.09 \times 1{,}000 = 90$

$$CY = \frac{90}{962} = 9.36\%$$

Why the other options are wrong

- **A.** 8.66% multiplies the coupon by the price as a fraction of par ($90 \times 0.962/1{,}000$) instead of dividing the coupon by the price.

- **B.** 9.00% is the coupon rate, which divides the coupon by par rather than by the market price.

Key takeaway A bond priced below par has a current yield above its coupon rate.

Reading 57: Yield and Yield Spread Measures for Fixed-Rate Bonds. Notes: credguild.com/cfa/level-1/notes/fixed-income/credit-spread/

Question 234 **Answer: C**

A yield based on the scheduled coupon dates follows the street convention; a yield based on the actual payment dates, after moving payments past weekends and holidays, is the true yield. Because some cash arrives later, the true yield is usually slightly lower (by a few basis points) than the street convention yield.

Why the other options are wrong

- **A.** The label is correct, but delaying cash flows lowers the yield on a given price.
- **B.** The street convention yield is the first figure, based on scheduled dates; the figure based on actual payment dates is the true yield.

Key takeaway Street convention = scheduled dates; true yield = actual payment dates, usually a little lower.

Reading 57: Yield and Yield Spread Measures for Fixed-Rate Bonds. Notes: credguild.com/cfa/level-1/notes/fixed-income/credit-spread/

Question 235 **Answer: B**

A callable bond has a yield to call for every possible call date as well as a yield to maturity. The yield to worst is the lowest of all these yields. It is the most conservative return the investor can expect if the issuer acts in its own interest.

Why the other options are wrong

- **A.** The yield to worst is not a default measure; all the yields compared assume that every promised payment is made.
- **C.** The yield to worst is chosen among yields computed at the current price for each possible redemption date. Historical prices play no part.

Key takeaway Yield to worst = min(YTM, YTC at each call date).

Reading 57: Yield and Yield Spread Measures for Fixed-Rate Bonds. Notes: credguild.com/cfa/level-1/notes/fixed-income/credit-spread/

Question 236 **Answer: C**

For a callable bond, part of the Z-spread is extra yield that compensates the investor for the issuer's call option. The OAS removes that option component, so $\text{OAS} = \text{Z-spread} - \text{option value}$, which is below 160 bp when the option has value.

Why the other options are wrong

- **A.** An OAS above the Z-spread would require an option that benefits the investor (for example, a put). A call held by the issuer works the other way.
- **B.** The OAS equals the Z-spread only for an option-free bond or an option with zero value.

Key takeaway Callable bond: $\text{OAS} < \text{Z-spread}$; the gap is the option value.

Reading 57: Yield and Yield Spread Measures for Fixed-Rate Bonds. Notes: credguild.com/cfa/level-1/notes/fixed-income/credit-spread/

Question 237 **Answer: A**

Coupons are projected at MRR + QM and discounted at MRR + DM. The QM (110 bp) exceeds the DM (70 bp), so the note is worth more than par.

Coupon rate $= 4.20\% + 1.10\% = 5.30\%$, so the annual coupon $= 0.053 \times \$5{,}000{,}000 = \$265{,}000$.

Discount rate $= 4.20\% + 0.70\% = 4.90\%$.

$$V = \sum_{t=1}^{4} \frac{265{,}000}{1.049^{t}} + \frac{5{,}000{,}000}{1.049^{4}} = \$5{,}071{,}084$$

TI BA II Plus (P/Y = C/Y = 1, END mode): N = 4, I/Y = 4.90, PMT = 265,000, FV = 5,000,000, CPT PV = −5,071,084.

Why the other options are wrong

- **B.** $5,000,000 assumes the FRN must trade at par on a reset date. That holds only when the quoted margin equals the discount margin; here QM > DM.
- **C.** $4,929,572 swaps the two margins: coupons at 4.20% + 0.70% = 4.90% discounted at 4.20% + 1.10% = 5.30%, which produces a discount price.

Key takeaway Coupons come from the QM and the discount rate from the DM. If QM > DM the note trades at a premium; if QM < DM, at a discount.

Reading 58: Yield and Yield Spread Measures for Floating-Rate Instruments. Notes: credguild.com/cfa/level-1/notes/fixed-income/yield-and-yield-spread-measures-for-floating-rate-instruments/

Question 238 **Answer: B**

A CD is an add-on instrument: the investor deposits the full amount and receives it back with interest. The BEY annualizes the add-on return for the 91 days using a 365-day year, without compounding.

$$HPY = \frac{1{,}006.50}{1{,}000} - 1 = 0.65\%$$

$$BEY = 0.65\% \times \frac{365}{91} = 2.607\%$$

Why the other options are wrong

- **A.** 2.57% annualizes the 0.65% return on a 360-day year ($0.65\% \times 360/91$); a BEY uses 365 days.
- **C.** 2.63% compounds the period return into an effective annual yield ($1.0065^{365/91} - 1$). The BEY is a simple annualization with no compounding.

Key takeaway The BEY is a simple add-on annualization on a 365-day year, with no compounding and no 360-day year.

Reading 58: Yield and Yield Spread Measures for Floating-Rate Instruments. Notes: credguild.com/cfa/level-1/notes/fixed-income/yield-and-yield-spread-measures-for-floating-rate-instruments/

Question 239 **Answer: B**

The quoted margin (QM) is the fixed spread, set in the indenture, that is combined with the MRR to determine each coupon (it can be positive or negative). The discount (required) margin (DM) is the spread over the MRR at which the note would be priced at par on a reset date. Because the QM was fixed at issuance for the credit risk investors saw then, a DM below the QM means investors now demand less compensation, most likely because the issuer's credit quality has improved. With QM > DM, the note trades at a premium.

Why the other options are wrong

- **A.** A change in the reference rate flows into both the coupon (MRR + QM) and the required return (MRR + DM), so it does not open a gap between the two margins.
- **C.** When the discount margin is below the quoted margin, the coupon exceeds the required return and the note trades above par.

Key takeaway DM below QM points to improved credit and a premium price; DM above QM points to deteriorated credit and a discount.

Reading 58: Yield and Yield Spread Measures for Floating-Rate Instruments. Notes: credguild.com/cfa/level-1/notes/fixed-income/yield-and-yield-spread-measures-for-floating-rate-instruments/

Question 240 **Answer: C**

A zero-coupon bond pays no coupons: at a positive yield it is bought below par and pays par at maturity, so its entire return is price appreciation and there is no uncertainty about reinvesting coupons. Its yield to maturity is the spot rate for its maturity.

Why the other options are wrong

- **A.** The YTM of a zero-coupon bond *is* the spot rate for that maturity, so the 4-year spot rate is 5.2%; it is not divided by the number of years.
- **B.** Spot rates generally differ across maturities, and that variation is what the spot curve shows. Only in a flat environment are they all equal.

Key takeaway Zero-coupon bond: YTM = spot rate; at a positive yield the whole return is the price rising toward par; no reinvestment risk.

Reading 59: The Term Structure of Interest Rates: Spot, Par, and Forward Curves. Notes: credguild.com/cfa/level-1/notes/fixed-income/the-term-structure-of-interest-rates-spot-par-and-forward-curves/

Question 241 **Answer: A**

The arbitrage-free approach uses multiple discount rates: the spot rate for each cash-flow date, taken from the current term structure. Pricing this way leaves no profit from stripping the bond into zero-coupon pieces or rebuilding it from them.

Why the other options are wrong

- **B.** A geometric average of spot rates is still one rate for every cash flow; it does not apply the correct rate to each date.
- **C.** One discount rate for all cash flows is the yield-to-maturity approach, which is not how arbitrage-free values are derived.

Key takeaway Arbitrage-free valuation uses one spot rate per cash-flow date.

Reading 59: The Term Structure of Interest Rates: Spot, Par, and Forward Curves. Notes: credguild.com/cfa/level-1/notes/fixed-income/the-term-structure-of-interest-rates-spot-par-and-forward-curves/

Question 242 **Answer: B**

The par rate is the coupon that makes the spot-rate value of the bond equal to 100. It is a weighted average of the spot rates, dominated by the 3-year rate, so in an upward-sloping environment it lies just below the 3-year spot rate.

Discount factors: $d_1 = 1/1.021 = 0.97943$, $d_2 = 1/1.029^2 = 0.94443$, $d_3 = 1/1.036^3 = 0.89933$.

$$c = \frac{100\,(1 - d_3)}{d_1 + d_2 + d_3} = \frac{100 \times 0.10067}{2.82319} = 3.566\% \approx 3.57\%$$

Check with the middle choice: $3.57/1.021 + 3.57/1.029^2 + 103.57/1.036^3 = 100.01 \approx 100$.

Why the other options are wrong

- **A.** 2.87% is the simple average of the three spot rates; the par rate gives far more weight to the year-3 cash flow.
- **C.** 3.60% is the 3-year spot rate. A bond with a 3.60% coupon would price slightly above par (about 100.10), because its first two coupons are discounted at spot rates below 3.6%.

Key takeaway In a normal (upward-sloping) curve, par rates sit just below spot rates. Plugging in the middle answer choice is a fast exam check.

Reading 59: The Term Structure of Interest Rates: Spot, Par, and Forward Curves. Notes: credguild.com/cfa/level-1/notes/fixed-income/the-term-structure-of-interest-rates-spot-par-and-forward-curves/

Question 243 **Answer: B**

A 3-year zero-coupon bond has one cash flow at year 3, so it is discounted at the 3-year spot rate, which is the geometric mean of the 1-year spot and the two forward rates. Equivalently, divide 100 by the product of the three growth factors.

$$P = \frac{100}{(1.028)(1.046)(1.062)} = \frac{100}{1.14195} = 87.57$$

Equivalently, $S_3 = 1.14195^{1/3} - 1 = 4.524\%$; TI BA II Plus (P/Y = C/Y = 1): N = 3, I/Y = 4.524, PMT = 0, FV = 100, CPT PV = −87.57.

Why the other options are wrong

- **A.** 92.05 discounts for three years at the 1-year spot rate of 2.8%, ignoring the higher forward rates for years 2 and 3.
- **C.** 83.49 discounts for three years at the 2y1y rate of 6.2%, as if the last year's rate applied to every year.

Key takeaway To discount a year-N cash flow with forward rates, divide by the product of all one-period factors up to year N.

Reading 59: The Term Structure of Interest Rates: Spot, Par, and Forward Curves. Notes: credguild.com/cfa/level-1/notes/fixed-income/the-term-structure-of-interest-rates-spot-par-and-forward-curves/

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Question 244 **Answer: A**

The chart shows a downward-sloping (inverted) environment. When forward rates decline with maturity, spot rates (geometric means of the forwards) decline more slowly, and par rates (weighted averages of spot rates) lie close to but slightly above the spot rates. The highest curve, X, is therefore the par curve; Y is the spot curve and Z the forward curve.

Why the other options are wrong

- **B.** The spot curve is Y: it lies just below the par curve in an inverted environment and above the forward curve.
- **C.** The forward curve is Z, the lowest and steepest curve: falling forward rates are what pull the spot and par curves down.

Key takeaway Normal curve: forward > spot > par. Inverted curve: forward < spot < par. Flat: all equal.

Reading 59: The Term Structure of Interest Rates: Spot, Par, and Forward Curves. Notes: credguild.com/cfa/level-1/notes/fixed-income/the-term-structure-of-interest-rates-spot-par-and-forward-curves/

Question 245 **Answer: A**

A fixed-rate bond has three sources of return: coupon and principal payments, reinvestment income on the coupons, and any capital gain or loss if it is sold before maturity. The manager's description covers the coupons and the price/principal difference but omits the interest earned by reinvesting coupons over the horizon.

Why the other options are wrong

- **B.** The description omits reinvestment income, which can be a large part of the return on a long-horizon, high-coupon bond.
- **C.** It is true that a bond held to maturity has no capital gain or loss, but that is not what is wrong with the description. It already allows for the bond to mature at par.

Key takeaway Three sources of bond return: coupons and principal, reinvestment income, and capital gain or loss on a sale before maturity.

Reading 60: Interest Rate Risk and Return. Notes: credguild.com/cfa/level-1/notes/fixed-income/interest-rate-risk-and-return/

Question 246 **Answer: A**

A capital gain or loss is measured against the carrying value, which is the price the bond would have at the sale date if its yield had stayed at the 5.2% purchase YTM. The sale price of 92.10 is above that carrying value, so Volkov has a capital gain.

Carrying value after 4 years (11 years = 22 half-years left, at the purchase YTM; P/Y = C/Y = 1, END): N = 22, I/Y = 2.6, PMT = 2, FV = 100, CPT PV = −90.043.

$$\text{Capital gain} = 92.10 - 90.043 = 2.06 \text{ per } 100 \text{ of par}$$

For reference, the purchase price was 87.608 (N = 30, I/Y = 2.6, PMT = 2, FV = 100).

Why the other options are wrong

- **B.** 4.49 compares the sale price with the purchase price ($92.10 - 87.608$). Part of that rise ($90.043 - 87.608 = 2.435$) is the normal accretion of the discount along the constant-yield path, which is interest income.

- **C.** A loss of 7.90 compares the sale price with par ($92.10 - 100$). Par is relevant only at maturity.

Key takeaway Carrying value is the PV of the remaining cash flows at the original YTM, and the capital gain is sale price minus carrying value.

Reading 60: Interest Rate Risk and Return. Notes: credguild.com/cfa/level-1/notes/fixed-income/interest-rate-risk-and-return/

Question 247 Answer: C

When a bond's Macaulay duration equals the investor's horizon, a change in yield moves reinvestment income and the sale price by roughly equal and opposite amounts. Setting the portfolio's Macaulay duration at eight years makes the duration gap zero, so the two risks balance.

Why the other options are wrong

- **A.** Modified duration is Macaulay duration divided by (1 + periodic yield); it measures percentage price sensitivity.
- **B.** Effective duration measures price sensitivity to shifts in a benchmark curve (used for bonds with embedded options); it is not the horizon-matching measure.

Key takeaway Match Macaulay duration to the investment horizon to balance price risk and reinvestment risk.

Reading 60: Interest Rate Risk and Return. Notes: credguild.com/cfa/level-1/notes/fixed-income/interest-rate-risk-and-return/

Question 248 Answer: B

Macaulay duration is the weighted average time (here 3.46 years) until the bond's cash flows are received, using the present value of each cash flow as a share of the bond's price as the weight. It is shorter than the 4-year maturity because coupons arrive before the final payment.

Why the other options are wrong

- **A.** Duration measures in general describe price sensitivity, but that is the interpretation of modified duration (percentage price change per 1% change in yield).
- **C.** The principal is repaid at maturity, in four years. The 3.46 figure is an average time across all cash flows.

Key takeaway Macaulay duration is expressed in years: the PV-weighted average time to receipt of the cash flows.

Reading 60: Interest Rate Risk and Return. Notes: credguild.com/cfa/level-1/notes/fixed-income/interest-rate-risk-and-return/

Question 249 Answer: C

Modified duration is Macaulay duration divided by one plus the bond's periodic yield. The YTM must first be found from the price; for an annual-pay bond the periodic yield is the YTM itself.

YTM (P/Y = C/Y = 1, END): N = 7, PV = −944.18, PMT = 50, FV = 1,000, CPT I/Y = 6.00.

$$\text{ModDur} = \frac{6.0444}{1.06} = 5.702$$

Why the other options are wrong

- **A.** 5.868 divides by $1 + 0.06/2 = 1.03$, a semiannual adjustment; this bond pays annually.
- **B.** 5.757 divides by one plus the coupon rate (1.05) instead of one plus the YTM (1.06).

Key takeaway ModDur divides by one plus the periodic yield (the coupon rate plays no part), and the periodic yield matches the payment frequency.

Reading 61: Yield-Based Bond Duration Measures and Properties. Notes: credguild.com/cfa/level-1/notes/fixed-income/macaulay-duration/

Question 250 **Answer: A**

Duration is a linear (tangent-line) approximation, but the price-yield curve of an option-free bond is convex. For a large fall in yield the actual price rises more than the straight line predicts, so a duration-only estimate understates the gain; for a large rise in yield it overstates the loss.

Why the other options are wrong

- **B.** The curve lies above the tangent line, so the actual increase is larger than the estimate.
- **C.** Duration captures only the slope of the price-yield curve. It misses the curvature (convexity). For a large 150 bp change the error is noticeable.

Key takeaway Duration alone: underestimates price increases and overestimates price decreases for large yield changes.

Reading 61: Yield-Based Bond Duration Measures and Properties. Notes: credguild.com/cfa/level-1/notes/fixed-income/macaulay-duration/

Question 251 **Answer: C**

Money duration is modified duration times the full value of the position. Multiplying it by the yield change (as a decimal) estimates the currency change in value, and a rise in yield lowers the value.

Full value $= 0.9875 \times \$6{,}000{,}000 = \$5{,}925{,}000.$

$$\text{Money duration} = 5.4 \times 5{,}925{,}000 = \$31{,}995{,}000$$

$$\Delta V \approx -31{,}995{,}000 \times 0.0015 = -\$47{,}992.50 \approx -\$47{,}993$$

Link to PVBP: $31{,}995{,}000 \times 0.0001 = \$3{,}199.50$ per basis point, and $15 \times 3{,}199.50 = \$47{,}992.50.$

Why the other options are wrong

- **A.** −$479,925 enters 15 bp as 0.015 instead of 0.0015.
- **B.** −$48,600 applies modified duration to the $6 million par value instead of the $5,925,000 full value.

Key takeaway $\Delta V \approx -\text{money duration} \times \Delta\text{YTM}$; $\text{PVBP} \approx \text{money duration} \times 0.0001.$

Reading 61: Yield-Based Bond Duration Measures and Properties. Notes: credguild.com/cfa/level-1/notes/fixed-income/macaulay-duration/

Question 252 **Answer: C**

Other things equal, a higher yield lowers duration. The price-yield curve is convex and flatter at higher yields, so the same yield change produces a smaller percentage price change. This holds whether the bond trades at a premium or a discount.

Why the other options are wrong

- **A.** Duration increases when yields fall. A rise in yields shortens it.

- **B.** Modified duration depends on the yield level through both the PV weights and the $1 + \text{YTM}$ divisor, so it changes when yields change.

Key takeaway For option-free bonds, a higher yield lowers duration and a lower yield raises it.

Reading 61: Yield-Based Bond Duration Measures and Properties. Notes: credguild.com/cfa/level-1/notes/fixed-income/macaulay-duration/

Question 253 **Answer: A**

Because the coupon is reset to the market reference rate each period, a floating-rate note's price returns to about par at each reset date. Its Macaulay duration is therefore approximately the time until the next reset rather than its maturity.

Time to next reset $= 6 - 2 = 4$ months $= 4/12 = 0.33$ years.

Why the other options are wrong

- **B.** 0.50 years is the full reset period; two of the six months have already passed.
- **C.** 6.00 years is the final maturity. The resets protect the price from rate changes, so the maturity overstates the note's duration.

Key takeaway An FRN's duration is approximately the time to the next coupon reset date.

Reading 61: Yield-Based Bond Duration Measures and Properties. Notes: credguild.com/cfa/level-1/notes/fixed-income/macaulay-duration/

Question 254 **Answer: A**

Convexity is the present-value-weighted average of each cash flow's convexity, $t(t+1)/(1+r)^2$, using the periodic yield. For a semiannual bond the result is in half-years squared and must be divided by $2^2 = 4$ to annualize.

Periodic yield $r = 3\%$; cash flows 4, 4, 104.

PVs: $4/1.03 = 3.8835$; $4/1.03^2 = 3.7704$; $104/1.03^3 = 95.1747$; price $= 102.8286$.

Weights: 0.0378, 0.0367, 0.9256. Cash-flow convexities: $1 \times 2/1.03^2 = 1.8852$; $2 \times 3/1.03^2 = 5.6556$; $3 \times 4/1.03^2 = 11.3112$.

Periodic convexity $= 0.0378(1.8852) + 0.0367(5.6556) + 0.9256(11.3112) \approx 10.748$; annualized $= 10.748/4 \approx 2.69$.

Why the other options are wrong

- **B.** 5.37 divides by the periodicity (2) instead of the periodicity squared (4).
- **C.** 10.75 is the convexity in semiannual periods, before annualizing.

Key takeaway Annualize convexity by dividing by periodicity squared (4 for semiannual).

Reading 62: Yield-Based Bond Convexity and Portfolio Properties. Notes: credguild.com/cfa/level-1/notes/fixed-income/bond-convexity/

Question 255 **Answer: B**

Convexity is increased by the same features that increase duration: a longer maturity and a lower coupon rate (and a lower yield, which is equal here). The 25-year, 2% coupon bond combines the longest maturity with the lowest coupon, so it has the most convexity.

Why the other options are wrong

- **A.** This bond has both the shorter maturity and the higher coupon, so it has the least convexity of the three.
- **C.** The low coupon raises convexity relative to the 7% bond, but with a 10-year maturity it is less convex than the 25-year bond with the same coupon.

Key takeaway A longer maturity, a lower coupon and a lower yield all raise convexity. For equal duration, more dispersed cash flows give more convexity.

Reading 62: Yield-Based Bond Convexity and Portfolio Properties. Notes: credguild.com/cfa/level-1/notes/fixed-income/bond-convexity/

Question 256 **Answer: A**

With positive convexity the price-yield curve is steeper at lower yields, so an equal-sized decline in yield produces a larger price gain than the price loss produced by an equal-sized rise in yield.

Why the other options are wrong

- **B.** Bond prices and yields move in opposite directions; convexity does not change that.
- **C.** Convexity describes the asymmetry between price gains and losses. It does not compare the rate of price change with the rate of yield change.

Key takeaway Positive convexity means bigger gains than losses for equal yield moves.

Reading 62: Yield-Based Bond Convexity and Portfolio Properties. Notes: credguild.com/cfa/level-1/notes/fixed-income/bond-convexity/

Question 257 **Answer: A**

Portfolio duration is the average of the bonds' durations weighted by each bond's market value (price per 100 of par times par, divided by 100) as a proportion of the portfolio's total market value.

Market values: $1{,}000{,}000 \times 1.12 = 1{,}120{,}000$; $1{,}200{,}000 \times 0.86 = 1{,}032{,}000$; $800{,}000 \times 1.01 = 808{,}000$. Total $= 2{,}960{,}000$.

$$D_p = \frac{1{,}120{,}000(3.1) + 1{,}032{,}000(10.8) + 808{,}000(6.0)}{2{,}960{,}000} = \frac{19{,}465{,}600}{2{,}960{,}000} \approx 6.58$$

Why the other options are wrong

- **B.** 6.63 is the simple (equal-weighted) average $(3.1 + 10.8 + 6.0)/3$, which ignores the bonds' different market values.
- **C.** 6.95 weights the durations by par value ($1.0, 1.2, 0.8$ out of 3.0 million) instead of market value; the discount bond is overweighted.

Key takeaway Weight each bond by its market value. Par-value and equal weights give the wrong answer.

Reading 62: Yield-Based Bond Convexity and Portfolio Properties. Notes: credguild.com/cfa/level-1/notes/fixed-income/bond-convexity/

Question 258 **Answer: B**

Effective duration uses model values that reflect how an embedded option changes expected cash flows as rates move; modified duration ignores that effect. For option-free bonds the two measures are similar. Both, however, assume a parallel shift in the curve.

Why the other options are wrong

- **A.** Neither effective nor modified duration handles nonparallel shifts; key rate durations do.
- **C.** A long maturity and low coupon raise duration and convexity, but for an option-free bond modified duration is still appropriate.

Key takeaway Effective duration matters when cash flows depend on rates (embedded options).

Reading 63: Curve-Based and Empirical Fixed-Income Risk Measures. Notes: credguild.com/cfa/level-1/notes/fixed-income/curve-based-and-empirical-fixed-income-risk-measures/

Question 259 **Answer: A**

The estimated change is the duration effect plus the convexity effect.

$$\%\Delta P \approx -6.72(-0.0065) + \tfrac{1}{2}(55.30)(-0.0065)^2 = 0.043680 + 0.001168 = 0.044848 \approx 4.48\%$$

Why the other options are wrong

- **B.** 4.37% is the duration effect alone.
- **C.** 4.25% subtracts the convexity effect.

Key takeaway Square the decimal yield change: $(0.0065)^2 = 0.00004225$.

Reading 63: Curve-Based and Empirical Fixed-Income Risk Measures. Notes: credguild.com/cfa/level-1/notes/fixed-income/curve-based-and-empirical-fixed-income-risk-measures/

Question 260 **Answer: C**

A key rate (partial) duration tells how much the value of a bond or portfolio moves when the benchmark rate at just one maturity changes and every other rate stays put. Summed across maturities, key rate durations equal the effective duration.

Why the other options are wrong

- **A.** Sensitivity to a parallel shift of the whole curve is measured by effective duration.
- **B.** Key rate duration is a rate sensitivity. It does not measure changes in a bond's cash flows.

Key takeaway Key rate duration covers one point on the curve; effective duration covers the whole curve moving in parallel.

Reading 63: Curve-Based and Empirical Fixed-Income Risk Measures. Notes: credguild.com/cfa/level-1/notes/fixed-income/curve-based-and-empirical-fixed-income-risk-measures/

Question 261 **Answer: C**

Empirical duration is a statistical estimate: it measures how bond prices have actually moved in the past when benchmark yields changed. It is useful for credit-risky portfolios, whose spreads may move with benchmark yields.

Why the other options are wrong

- **A.** Modified duration is calculated mathematically from the bond's cash flows and yield. It does not use historical data.
- **B.** Analytical durations (Macaulay, modified, effective) come from mathematical analysis of cash flows rather than from historical price data.

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Key takeaway A duration estimated from historical data (for example, by regression) is empirical; a formula-based duration is analytical.

Reading 63: Curve-Based and Empirical Fixed-Income Risk Measures. Notes: credguild.com/cfa/level-1/notes/fixed-income/curve-based-and-empirical-fixed-income-risk-measures/

Question 262 **Answer: A**

Capacity is the borrower's ability to make its debt payments on time. It is assessed with quantitative measures of profitability, coverage and leverage. A high EBIT margin, high interest coverage and low debt/EBITDA indicate strong capacity and a low probability of default.

Why the other options are wrong

- **B.** Collateral analysis looks at the value of the specific assets pledged as security rather than at the issuer's income and leverage ratios.
- **C.** Covenant analysis reviews the legal terms and conditions of the bond agreement.

Key takeaway Ratio analysis of profits, coverage and leverage assesses capacity; pledged assets are collateral; legal terms are covenants.

Reading 64: Credit Risk. Notes: credguild.com/cfa/level-1/notes/fixed-income/credit-risk/

Question 263 **Answer: B**

Credit ratings lag market pricing. Spreads and prices react to new information quickly, while agencies revise ratings more slowly, so an investor who waits for a rating change often trades after the price has already moved. Two further limitations are that some risks, such as litigation, natural disasters, acquisitions or debt-financed share buybacks, are hard to capture in a rating, and that agencies make mistakes. Investors should therefore do their own credit analysis as well.

Why the other options are wrong

- **A.** The statement is false. Agencies assign issuer credit ratings and issue credit ratings, and an issue can be notched above or below its issuer's rating.
- **C.** Comparing credit risk across issuers, industries and bond types is a use of credit ratings. It does not describe a limitation.

Key takeaway Uses of ratings: comparing credit risk, tracking credit migration risk and meeting regulatory or contractual rules. Limitations: ratings lag market prices, some risks are hard to rate, and agencies can be wrong.

Reading 64: Credit Risk. Notes: credguild.com/cfa/level-1/notes/fixed-income/credit-risk/

Question 264 **Answer: A**

In an economic expansion, profits rise and the probability of default falls, so corporate yield spreads narrow. Narrowing spreads mean corporate bond prices rise relative to government bond prices, so the manager should overweight corporates versus government bonds.

Why the other options are wrong

- **B.** This positioning profits when spreads widen, which is what happens when the economy weakens.
- **C.** Upgrading credit quality is a defensive move suited to an expected contraction; in a recovery the lower-rated bonds' spreads tend to narrow the most.

Key takeaway In an expansion spreads narrow, which favors credit (and lower quality); in a contraction spreads widen, which favors government and higher-quality bonds.

Reading 64: Credit Risk. Notes: credguild.com/cfa/level-1/notes/fixed-income/credit-risk/

Question 265 Answer: A

Duration and convexity estimate the price effect of a spread change exactly as they do for a yield change, with the spread change replacing the yield change. The convexity adjustment is positive, so it makes the price decline slightly smaller than the duration-only estimate.

$$\%\Delta P \approx -\text{ModDur} \times \Delta\text{Spread} + \tfrac{1}{2}\,\text{Convexity} \times (\Delta\text{Spread})^2$$

$$= -6.2(0.0060) + 0.5(52)(0.0060)^2 = -0.03720 + 0.000936 = -0.03626 \approx -3.63\%$$

Why the other options are wrong

- **B.** −3.72% is the duration-only estimate; it omits the positive convexity adjustment.
- **C.** −3.81% subtracts the convexity adjustment instead of adding it.

Key takeaway The convexity term $\frac{1}{2}\,\text{Convexity}\,(\Delta\text{Spread})^2$ is always added for an option-free bond.

Reading 64: Credit Risk. Notes: credguild.com/cfa/level-1/notes/fixed-income/credit-risk/

Question 266 Answer: C

Monetary effectiveness concerns the central bank's ability to vary the money supply and interest rates credibly to support stable growth. An independent central bank is less likely to print money to service government debt, which reduces the risk of high inflation and currency weakness.

Why the other options are wrong

- **A.** Fiscal flexibility is the government's ability to raise taxes or cut spending to keep up debt payments. That is a budget issue rather than a central bank issue.
- **B.** External status concerns the international standing of the currency (e.g., reserve currency status) and geopolitical risk.

Key takeaway Central bank credibility and independence belong to monetary effectiveness, room to tax or cut spending to fiscal flexibility, and reserve currency status to external status.

Reading 65: Credit Analysis for Government Issuers. Notes: credguild.com/cfa/level-1/notes/fixed-income/credit-analysis-for-government-issuers/

Question 267 Answer: B

Fiscal strength is measured by a low debt burden (debt/GDP) and good debt affordability (low interest/revenue). Varnholm's debt is a smaller share of its GDP, but its interest bill absorbs a larger share of its revenue, so the two measures point in different directions.

$$\text{Debt burden: Kestria} = \frac{780}{1{,}200} = 65.0\%, \qquad \text{Varnholm} = \frac{290}{500} = 58.0\%$$

$$\text{Debt affordability: Kestria} = \frac{29.4}{420} = 7.0\%, \qquad \text{Varnholm} = \frac{13.05}{145} = 9.0\%$$

Varnholm has the lower debt burden; Kestria has the lower (better) interest-to-revenue ratio.

Why the other options are wrong

- **A.** Kestria's debt/GDP (65%) is higher than Varnholm's (58%), so Kestria does not have the lighter debt burden.
- **C.** Varnholm's interest/revenue (9.0%) is higher than Kestria's (7.0%), so its debt affordability is worse.

Key takeaway Lower ratios are better for both fiscal strength measures, and the two can disagree, so compute both.

Reading 65: Credit Analysis for Government Issuers. Notes: credguild.com/cfa/level-1/notes/fixed-income/credit-analysis-for-government-issuers/

Question 268 **Answer: B**

Revenue bonds finance a specific project and are serviced from that project's revenues. The fare revenue of the light-rail line is the primary source of repayment. The national guarantee is extra credit support; it does not make the national government the issuer.

Why the other options are wrong

- **A.** General obligation bonds are backed by the full faith and credit, that is, the taxing power, of the issuing government. These bonds rely on the project's revenue instead.
- **C.** Sovereign bonds are issued by the national government itself and serviced mainly from its tax revenue. Here the issuer is a regional entity, and the national government only guarantees the debt.

Key takeaway Classify regional government debt by its primary source of repayment: tax base (GO bonds) or a single project's revenue (revenue bonds). A guarantee adds support but does not change the classification.

Reading 65: Credit Analysis for Government Issuers. Notes: credguild.com/cfa/level-1/notes/fixed-income/credit-analysis-for-government-issuers/

Question 269 **Answer: B**

Other things equal, companies have higher credit quality when they have strong operating profits and recurring revenues, low leverage, high coverage of debt service by income, and high liquidity to meet short-term debt payments. Higher liquidity means more cash and liquid assets to meet obligations that fall due soon.

Why the other options are wrong

- **A.** Higher leverage means greater reliance on debt in the capital structure, which points to lower credit quality.
- **C.** Lower coverage means income covers interest and principal payments less comfortably, which points to lower credit quality.

Key takeaway Signs of stronger corporate credit: strong, recurring profits; low leverage; high coverage; high liquidity.

Reading 66: Credit Analysis for Corporate Issuers. Notes: credguild.com/cfa/level-1/notes/fixed-income/credit-analysis-for-corporate-issuers/

Question 270 **Answer: A**

Secured debt ranks ahead of unsecured debt, and a first mortgage, which pledges a specific property, sits at the top of the secured classes. Senior unsecured debt is the highest class of unsecured debt. Senior subordinated debt ranks below it, because all subordinated classes rank behind other unsecured debt. Recovery rates fall with each step down this ranking.

Why the other options are wrong

- **B.** This places unsecured debt ahead of secured debt. First mortgage bondholders have a claim on the pledged property and rank first.
- **C.** The word "senior" in senior subordinated notes gives them priority only over other subordinated classes. They still rank behind senior unsecured notes.

Key takeaway General ranking: first lien or first mortgage, senior secured (second lien), junior secured, senior unsecured, senior subordinated, subordinated, junior subordinated.

Reading 66: Credit Analysis for Corporate Issuers. Notes: credguild.com/cfa/level-1/notes/fixed-income/credit-analysis-for-corporate-issuers/

Question 271 **Answer: A**

The issuer credit rating (the corporate family rating) reflects the borrower's overall creditworthiness and is typically based on its senior unsecured debt. Issue credit ratings apply to specific bonds and may be notched above or below the issuer rating depending on seniority and covenants.

Why the other options are wrong

- **B.** Notching can go either way: a secured issue with strong covenants may be rated above the issuer, a subordinated issue below it.
- **C.** The issuer rating (CFR) is the one typically based on senior unsecured debt. An issue rating reflects the seniority and covenants of one specific bond.

Key takeaway The CFR rates the issuer and is anchored on senior unsecured debt; an issue credit rating rates one specific bond and can be notched up or down.

Reading 66: Credit Analysis for Corporate Issuers. Notes: credguild.com/cfa/level-1/notes/fixed-income/credit-analysis-for-corporate-issuers/

Question 272 **Answer: B**

Securitization sells financial assets, not liabilities. Kestrel gives up $400 million of mortgage loans and receives $400 million of cash, so both of these asset lines change. The deposits that funded the loans stay on the balance sheet, because the SPE buys the loans and takes on none of the bank's obligations to its depositors. The bank benefits from the cash it can re-lend and from the lower capital it must hold once the loans are sold; removing deposits or other liabilities is not a benefit of securitization.

Effect of the sale on Kestrel's balance sheet:

- Mortgage loans: $-\$400$ million (sold to the SPE).
- Cash: $+\$400$ million (sale proceeds).
- Customer deposits and other liabilities: no change.

Why the other options are wrong

- **A.** The mortgages are the assets sold to the SPE, so this line falls by $400 million.
- **C.** The SPE pays $400 million for the mortgages, so cash rises by that amount until the bank re-lends it.

Key takeaway In a securitization the originator swaps loans for cash on the asset side; its deposits and other liabilities are not transferred.

Reading 67: Fixed-Income Securitization. Notes: credguild.com/cfa/level-1/notes/fixed-income/fixed-income-securitization/

Question 273 Answer: B

The trust is a special purpose entity, legally separate from Brenlow. Because it is bankruptcy remote, Brenlow's creditors have no claim on the loan pool, and a decline in Brenlow's finances does not affect ABS holders' claim on the collateral. The ABS can therefore be rated on the pool (plus any credit enhancement) rather than on Brenlow's overall credit.

Why the other options are wrong

- **A.** ABS are not automatically investment grade; subordinated tranches can be rated well below investment grade.
- **C.** ABS holders have no claim in Brenlow's bankruptcy at all. Their claim is on the SPE's collateral only, so they are not ranked against Brenlow's bonds.

Key takeaway Bankruptcy remoteness of the SPE (plus credit tranching) can allow senior ABS to be rated above the originator.

Reading 67: Fixed-Income Securitization. Notes: credguild.com/cfa/level-1/notes/fixed-income/fixed-income-securitization/

Question 274 Answer: B

In a securitization the credit risk of the collateral passes through to ABS investors: if borrowers in the pool default, investors bear the losses (after any credit enhancement). ABS investors also face uncertainty about the timing of cash flows, for example from prepayments.

Why the other options are wrong

- **A.** The SPE holds only the securitized pool, so the investor is not exposed to the bank's other loans.
- **C.** The SPE is bankruptcy remote, so the bank's creditors have no claim on the securitized collateral.

Key takeaway ABS investors swap exposure to the originator for exposure to the collateral pool itself.

Reading 67: Fixed-Income Securitization. Notes: credguild.com/cfa/level-1/notes/fixed-income/fixed-income-securitization/

Question 275 Answer: A

Covered bondholders have dual recourse: a claim on the cover pool and a claim on the issuing bank's other unencumbered assets. Ordinary ABS investors can look only to the collateral held by the SPE. The extra recourse, together with overcollateralization and loan-to-value limits, gives covered bonds higher credit quality and lower yields than comparable ABS.

Why the other options are wrong

- **B.** Because covered bonds are safer, investors accept lower yields than on comparable ABS.
- **C.** Dual recourse and a dynamic, overcollateralized cover pool give covered bonds higher credit quality than comparable ABS.

Key takeaway A covered bond has dual recourse, no SPE and a dynamic cover pool, which give it higher credit quality and a lower yield than comparable ABS.

Reading 68: Asset-Backed Security (ABS) Instrument and Market Features. Notes: credguild.com/cfa/level-1/notes/fixed-income/asset-backed-security-abs-instrument-and-market-features/

Question 276 Answer: B

During the lockout (revolving) period, ABS holders receive only interest and fees, and principal repaid by cardholders is used to buy new receivables so that the pool stays about the same size. An early (rapid) amortization provision ends this reinvestment and passes principal to investors sooner when that is needed to protect the credit quality of the securities, much like the acceleration of a loan when credit conditions worsen.

Why the other options are wrong

- **A.** Principal that cardholders repay during the lockout period is reinvested in new receivables, so faster repayment does not reach the ABS holders as principal. For the same reason, investors bear no prepayment risk during this period.
- **C.** A cap on the card rate limits the interest earned on the receivables. It can affect the interest available to investors, but it does not change when principal is repaid.

Key takeaway Credit card ABS: in the lockout (revolving) period investors get interest and fees only and principal is recycled into new receivables; in the amortization period principal is passed through; an early (rapid) amortization provision brings principal forward to protect credit quality.

Reading 68: Asset-Backed Security (ABS) Instrument and Market Features. Notes: credguild.com/cfa/level-1/notes/fixed-income/asset-backed-security-abs-instrument-and-market-features/

Question 277 Answer: B

Ordinary ABS rely on the cash flows from a static collateral pool. In a CDO, a collateral manager actively trades the pool's holdings to raise the cash required for the payments promised to CDO investors.

Why the other options are wrong

- **A.** Most ABS are also issued through a special purpose vehicle (SPV), so this does not distinguish a CDO.
- **C.** Senior/subordinated tranching is common to many ABS structures as well as CDOs.

Key takeaway The collateral manager is the defining feature of a CDO.

Reading 68: Asset-Backed Security (ABS) Instrument and Market Features. Notes: credguild.com/cfa/level-1/notes/fixed-income/asset-backed-security-abs-instrument-and-market-features/

Question 278 Answer: C

In a sequential-pay structure the first tranche receives all scheduled principal and prepayments first. If prepayments speed up, it is repaid sooner (more contraction risk); if they slow, it is still first in line, so it is well protected against extension, which falls mainly on the later tranche.

Why the other options are wrong

- **A.** This is the profile of the later tranche (Class K), which waits longest for principal.
- **B.** Time tranching reallocates prepayment risk: the short tranche gains extension protection in exchange for bearing more contraction risk, so it cannot have more of both.

Key takeaway First-pay tranche: contraction risk. Last-pay tranche: extension risk.

Reading 69: Mortgage-Backed Security (MBS) Instrument and Market Features. Notes: credguild.com/cfa/level-1/notes/fixed-income/mortgage-backed-security-mbs-instrument-and-market-features/

Question 279 **Answer: A**

The pool's weighted average coupon (WAC) weights each mortgage rate by its share of the pool's outstanding balance. Investors receive the pool's interest net of servicing and guarantee fees, so the pass-through rate is the WAC minus the fees.

Total balance $= 120 + 80 + 200 = 400$.

$$\text{WAC} = \frac{120(5.00\%) + 80(6.50\%) + 200(5.75\%)}{400} = \frac{600 + 520 + 1{,}150}{400}\% = 5.675\%$$

$$\text{Pass-through rate} = 5.675\% - 0.50\% = 5.175\% \approx 5.18\%$$

The remaining terms are not needed here. They would be used for the WAM, $= (120 \times 22 + 80 \times 15 + 200 \times 27)/400 = 23.1$ years.

Why the other options are wrong

- **B.** 5.25% subtracts the fees from a simple average of the three rates (5.75%) instead of the balance-weighted WAC.
- **C.** 5.68% is the WAC itself; it omits the 0.50% of fees deducted before investors are paid.

Key takeaway Weight by current balance, then deduct fees. The pass-through rate is always below the WAC when fees are charged.

Reading 69: Mortgage-Backed Security (MBS) Instrument and Market Features. Notes: credguild.com/cfa/level-1/notes/fixed-income/mortgage-backed-security-mbs-instrument-and-market-features/

Question 280 **Answer: A**

A higher debt service coverage ratio means the property's net operating income covers the required interest and principal by a wider margin. A lower loan-to-value ratio means the loan is smaller relative to the property's value, so the borrower has more equity and the lender recovers more in a default. Both indicate better credit quality.

Why the other options are wrong

- **B.** Both ratios point to weaker credit: thinner income coverage and more leverage.
- **C.** The higher DSC ratio is favorable, but a higher LTV ratio signals more leverage and higher default risk.

Key takeaway A higher DSCR and a lower LTV indicate stronger CMBS credit.

Reading 69: Mortgage-Backed Security (MBS) Instrument and Market Features. Notes: credguild.com/cfa/level-1/notes/fixed-income/mortgage-backed-security-mbs-instrument-and-market-features/

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Derivatives

Questions 281–312 · 10 readings

70 Derivative Instrument and Derivative Market Features

Question 281

Harlow Capital agrees with a dealer to buy 200 shares of Pemberton Mills in three months at a forward price of $48.00 per share. The contract is cash settled. On the settlement date, Pemberton shares trade at $44.50. The settlement of the contract is:

A The dealer pays Harlow $700.

B Harlow pays the dealer $700.

C Harlow pays the dealer $9,600.

Question 282

A client asks her adviser how exchange-traded derivatives differ from contracts arranged with dealers. Which of the adviser's statements about exchange-traded derivatives is *least accurate*?

A They are backed by a central clearinghouse.

B They are traded by exchange members at a central exchange.

C They are generally illiquid.

Question 283

A portfolio manager is explaining to a trustee why an interest rate swap held by the fund is classified as a derivative. The defining feature she should point to is that the instrument's value:

A is derived from the value of an underlying asset, rate, or index.

B is set out in a contract between two counterparties.

C is determined in trading that takes place away from an organized exchange.

71 Forward vs Futures

Question 284

Laszlo Bencze holds a long futures position. The initial margin on his account is $3,800 and the maintenance margin is $2,900. After today's mark-to-market, his account balance is $2,650. If Bencze wants to keep the position open, the deposit he must make is *closest* to:

A $250.

B $1,150.

C $2,900.

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Question 285

Bergen Pension Fund owns bonds issued by Holloway Freight. It enters a credit default swap as the buyer of credit protection on those bonds. Under the swap, the fund:

A issues a note whose payments come from the cash flows of the Holloway bonds.

B exchanges the total return on the Holloway bonds for a fixed or floating rate.

C makes a series of periodic payments to the protection seller.

Question 286

Tobias Grant buys a call option on Wexford Bio shares with an exercise price of $36.00 for a premium of $3.40, when the shares trade at $38.90. At expiration the shares are priced at $37.10. Grant's net profit or loss on the call is *closest* to:

A −$3.40.

B −$2.30.

C $2.30.

Question 287

A trainee lists features of forward commitments. Which item on her list is *least accurate*?

A The underlying can be a stock index or a portfolio.

B Each party is legally obligated to act at a future date.

C Either party can walk away at settlement without penalty.

72 Derivative Benefits, Risks, and Issuer and Investor Uses

Question 288

A manager wants short exposure to a commodity but finds that borrowing physical inventory for a short sale is impractical. Which feature of derivatives is *most useful* to the manager?

A They eliminate basis risk whenever a derivative is used as a hedge.

B Short exposure is generally as easy to establish as long exposure.

C They prevent implicit leverage from magnifying gains and losses on a position.

Question 289

Which of the following hedges is *most* exposed to basis risk?

A A gold refiner sells gold forwards that match the quantity, grade and delivery date of a sale it has already agreed.

B A Canadian importer buys a US dollar forward for the amount and settlement date of a dollar invoice it must pay.

C A manager of 40 regional bank stocks sells forwards on a broad national equity index equal to the portfolio's value.

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Question 290

Marlowe Industries carries its fixed-rate notes payable at fair value and applies hedge accounting. To reduce swings in the reported value of the notes as interest rates change, it enters an interest rate swap in which it pays a floating rate and receives a fixed rate. This hedge is best classified as a:

A fair value hedge.

B cash flow hedge.

C net investment hedge.

73 Arbitrage, Replication, and the Cost of Carry in Pricing Derivatives

Question 291

The no-arbitrage approach used to value derivatives relies on the assumption that:

A any arbitrage opportunities that appear are exploited quickly.

B investors are risk neutral.

C arbitrage opportunities never arise in actual markets.

Question 292

A share of Halvorsen Robotics, which pays no dividends, trades at $80.00, and the 1-year risk-free rate is 4%. A dealer quotes a 1-year forward price on the share of $82.50. Assuming no transaction costs, which strategy earns an arbitrage profit?

A Buy the forward, sell the share short, and invest the proceeds at 4%.

B Sell the forward and borrow at 4% to buy the share.

C None, because the forward price is above the spot price.

Question 293

An analyst compares forwards on two commodities with the same spot price and the same time to settlement. Commodity P has no costs or benefits of holding. For commodity Q, storage and insurance costs exceed its convenience yield. Compared with the forward price on P, the no-arbitrage forward price on Q will be:

A Lower.

B Higher.

C The same.

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74 Pricing and Valuation of Forward Contracts and for an Underlying With Varying Maturities

Question 294

Eight months ago, Selma Varga entered a 1-year long forward contract on a share that has no dividends or other costs or benefits of holding, at a forward price of $55.00. The share now trades at $57.00 and the annual risk-free rate is 3%. The value of Varga's forward position is *closest* to:

A $1.98.

B $2.00.

C $2.54.

Question 295

Annual-pay zero-coupon yields are 2.4% for 1 year, 2.8% for 2 years, and 3.1% for 3 years. The implied 1-year forward 2-year rate (1y2y), stated as an annual rate, is *closest* to:

A 3.45%.

B 3.70%.

C 7.02%.

Question 296

A company expects to invest surplus cash for three months, starting four months from today. It wants to lock in the return on that future investment with an FRA. The company should enter the FRA as the party that:

A pays fixed and receives MRR.

B receives fixed and pays MRR.

C receives both fixed and MRR.

75 Pricing and Valuation of Futures Contracts

Question 297

A trader buys one futures contract on 50 tonnes of cocoa at a price of 4,120 per tonne. At the end of the day, the settlement price is 4,180. After the daily mark-to-market, which statement is *most accurate*?

A The contract price and contract value both change.

B The contract price is unchanged, but the contract value changes.

C The contract price changes, and the contract value returns to zero.

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Question 298

Analyst Farah Idris observes that when the price of a commodity rises, short-term interest rates also tend to rise. For an investor seeking long exposure, which statement is *most accurate* about a long futures contract compared with an otherwise equivalent forward that has no mark-to-market?

A The long futures contract is more attractive than the forward.

B The long forward contract is more attractive than the futures.

C Both contracts are equally attractive.

Question 299

A fund manager is long 8 three-month MRR futures contracts, each on a notional principal of $1,000,000. Over the day, the futures price falls from 96.40 to 96.25. The change in the value of the manager's position is:

A A loss of $12,000.

B A loss of $3,000.

C A gain of $3,000.

76 Interest Rate Swap

Question 300

An analyst breaks a fixed-for-floating interest rate swap into a series of forward contracts (FRAs), each with a contract rate equal to the swap's fixed rate. For this series to replicate a swap entered at market terms, the forward contracts must have:

A values that are each equal to zero at swap initiation.

B values that sum to zero at swap initiation.

C values that sum to zero at swap expiration.

Question 301

Six months after Orsolya Farms entered a 5-year interest rate swap as the fixed-rate payer, expected future MRRs have risen. Which statement is *most accurate*?

A The swap's value to Orsolya has fallen; the swap price is unchanged.

B The swap's value to Orsolya has risen; the swap price has also risen.

C The swap's value to Orsolya has risen; the swap price is unchanged.

Question 302

Rhea Kapoor wants to use cash market transactions to reproduce the net cash flows of the floating-rate payer in a plain vanilla interest rate swap. She could best do so by:

A taking out a floating-rate loan and buying a fixed-rate bond.

B taking out a fixed-rate loan plus a strip of zero-value FRAs.

C taking out a floating-rate loan plus a strip of zero-value FRAs.

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77 Pricing and Valuation of Options

Question 303

Hana Novak owns two options on the same stock: a call with an exercise price of $62 and a put with an exercise price of $70. If the stock currently trades at $66:

A neither option is in the money.

B only the call option is in the money.

C both options are in the money.

Question 304

Which statement about a European put option is *most accurate*?

A Its exercise value is the stock price less the option's exercise price.

B Its time value is the sum of its market price and its exercise value.

C Its exercise value is the exercise price less the stock price, if positive.

Question 305

Compared with forward commitments, why must a different no-arbitrage approach be used to price options?

A Options have a positive value at initiation and one-sided payoffs.

B Options cannot be replicated with the underlying and a bond.

C Options are valued with a risk-adjusted discount rate only.

Question 306

Tomás Reyes has bought a European call option and written a European put option on the same equity index. Holding all other factors constant, an increase in the risk-free interest rate will increase the value of:

A neither of his positions.

B only one of his positions.

C both of his positions.

78 Put Call Parity

Question 307

A portfolio manager wants to reproduce the expiration payoff of a European put without trading any puts. She can trade the stock, a European call with the same strike and expiration, and a risk-free pure-discount bond that pays the exercise price X at expiration. Based on put–call parity, which combination should she hold?

A Short the stock, long the call, short a pure-discount bond that pays X.

B Short the stock, long the call, long a pure-discount bond that pays X.

C Long the stock, short the call, short a pure-discount bond that pays X.

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Question 308

Castellan Group is financed with common equity and a single issue of zero-coupon debt. When options theory is applied to this capital structure, the firm's credit risk can be modeled as a:

A put option written by the debtholders and held by the shareholders.

B call option written by the debtholders and held by the shareholders.

C call option written by the shareholders and held by the debtholders.

Question 309

Shares of Brisa Networks trade at $73.00. A 6-month European call on the shares with an exercise price of $70.00 is priced at $6.20, and the annual risk-free rate is 4%. The shares pay no dividends. Based on put–call parity, the value of a 6-month European put with the same exercise price is *closest* to:

A $1.84.

B $3.20.

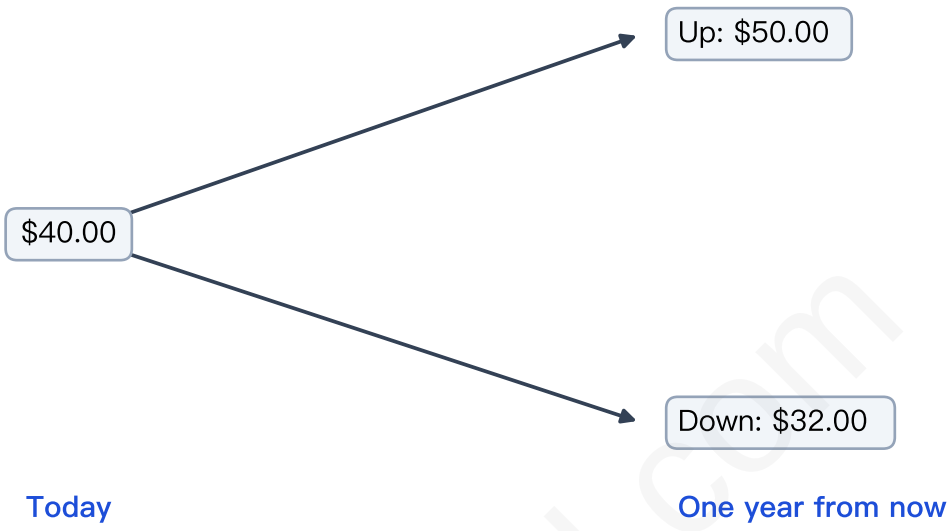
C $10.56.

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79 Binomial Option Pricing Model

Question 310

Shares of Solvay Ridge follow the one-period binomial tree shown below. The one-year risk-free rate is 4%.



One-period binomial tree for Solvay Ridge shares

An analyst wants to write one-year European calls on the shares with an exercise price of $44 and hold shares so that the combined position has the same value at expiration whatever the share price. The number of shares to hold per call written is *closest* to:

A 0.32.

B 0.33.

C 0.35.

Question 311

Shares of Keswick Marine trade at $60. In one year they will be worth either $78 after an up-move or $51 after a down-move. The one-year risk-free rate is 3%, and the risk-neutral probability of an up-move is 0.40. An analyst estimates the actual probability of an up-move at 0.55. Using risk-neutral valuation, the value of a one-year European call on the shares with an exercise price of $65 is *closest* to:

A $5.05.

B $5.20.

C $6.94.

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Question 312

In a one-period binomial model, a call is valued by combining one short call with h shares of the underlying so that the portfolio's value at the end of the period is the same after an up-move or a down-move. Rearranging this relationship, a position that replicates a long call consists of:

A buying h shares and also lending at the risk-free rate.

B selling h shares short and lending at the risk-free rate.

C buying h shares, financed partly by borrowing at the risk-free rate.

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DERIVATIVES

Answers and explanations

Answer key: 281. B · 282. C · 283. A · 284. B · 285. C · 286. B · 287. C · 288. B · 289. C · 290. A · 291. A · 292. A · 293. B · 294. C · 295. A · 296. B · 297. C · 298. A · 299. B · 300. B · 301. C · 302. A · 303. C · 304. C · 305. A · 306. C · 307. B · 308. A · 309. A · 310. B · 311. A · 312. C

Question 281 **Answer: B**

In a cash-settled forward only the gain or loss changes hands. Harlow, the buyer (long), agreed to pay $48.00 for shares now worth $44.50, so it has a loss and pays the difference to the dealer (the short).

$$\text{Payoff to long} = (S_T - F) \times \text{shares} = (44.50 - 48.00) \times 200 = -\$700$$

The long (Harlow) has a $700 loss and pays it to the short (the dealer). Economically this equals delivery: Harlow would pay $9,600 for shares it could sell for $200 \times 44.50 = \$8{,}900$.

Why the other options are wrong

- **A.** This reverses the direction. The buyer of a forward loses when the spot price at settlement is below the forward price, so the buyer pays the seller.
- **C.** $9,600 is the full forward price ($200 \times \$48$) that Harlow would pay in a deliverable contract in exchange for the shares. With cash settlement, only the net difference is paid.

Key takeaway Cash settlement transfers only $|S_T - F| \times$ size, from the losing side to the winning side.

Reading 70: Derivative Instrument and Derivative Market Features. Notes: credguild.com/cfa/level-1/notes/derivatives/derivative-instrument-and-derivative-market-features/

Question 282 **Answer: C**

Exchange-traded derivatives use standardized contracts, which makes them liquid in most cases: a trader can exit easily by taking an offsetting position. Illiquidity is a characteristic of customized OTC contracts, so this statement is the inaccurate one.

Why the other options are wrong

- **A.** Accurate. Exchange-traded derivatives are backed by a central clearinghouse that guarantees performance.
- **B.** Accurate. They trade at a centralized location, the exchange, through exchange members (market makers).

Key takeaway Exchange-traded: standardized, liquid, transparent, cleared centrally. OTC: customized, less liquid, counterparty risk.

Reading 70: Derivative Instrument and Derivative Market Features. Notes: credguild.com/cfa/level-1/notes/derivatives/derivative-instrument-and-derivative-market-features/

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Question 283 **Answer: A**

A derivative is a security whose value is derived from the value of something else, the underlying (another security, a commodity, an index, or a variable such as an interest rate). For an interest rate swap, the underlying is the market reference rate, so the swap's value depends on how that rate moves.

Why the other options are wrong

- **B.** Many contracts between two parties (a loan agreement, for example) are not derivatives. A derivatives contract does state the price at which a future transaction will (or may) take place, but being a contract does not by itself make an instrument a derivative.
- **C.** Where a contract trades does not decide whether it is a derivative. Futures and some options trade on organized exchanges and are still derivatives; forwards and most swaps trade OTC.

Key takeaway A derivative's value is derived from an underlying. Contract form and trading venue are features of derivatives but do not define them.

Reading 70: Derivative Instrument and Derivative Market Features. Notes: credguild.com/cfa/level-1/notes/derivatives/derivative-instrument-and-derivative-market-features/

Question 284 **Answer: B**

Because the balance ($2,650) has fallen below the maintenance margin ($2,900), Bencze receives a margin call. In futures trading the deposit must restore the account to the initial margin level, otherwise the position is closed out.

Balance $= \$2{,}650 < \$2{,}900$ maintenance margin $\Rightarrow$ margin call.

$$\text{Deposit} = \text{initial margin} - \text{current balance} = 3{,}800 - 2{,}650 = \$1{,}150$$

Why the other options are wrong

- **A.** $250 only restores the account to the maintenance margin $(2{,}900 - 2{,}650)$. That is the rule for equity margin accounts. Futures accounts must be restored to the initial margin.
- **C.** $2,900 is the maintenance margin itself. There is no rule requiring a deposit equal to the maintenance margin; the deposit is whatever brings the balance back to the initial margin.

Key takeaway After a futures margin call, the account is topped up to the initial margin whenever the balance drops below the maintenance margin.

Reading 71: Forward Commitment and Contingent Claim Features and Instruments. Notes: credguild.com/cfa/level-1/notes/derivatives/forward-vs-futures/

Question 285 **Answer: C**

In a credit default swap the protection buyer makes a series of fixed periodic payments to the protection seller. In return, the seller pays an amount that offsets the loss in value if the reference bond suffers a credit event such as default. The fund is effectively buying insurance on its Holloway bonds.

Why the other options are wrong

- **A.** A note funded by cash flows from an underlying bond is not a CDS. The CDS protection buyer issues nothing; it pays periodic premiums and receives a payment only after a credit event.

- **B.** Exchanging the bond's total return for a fixed or floating rate describes a different credit derivative. In a CDS the buyer pays fixed periodic premiums and receives a payment only after a credit event.

Key takeaway CDS: protection buyer pays periodic premiums; protection seller pays only if a credit event occurs.

Reading 71: Forward Commitment and Contingent Claim Features and Instruments. Notes: credguild.com/cfa/level-1/notes/derivatives/forward-vs-futures/

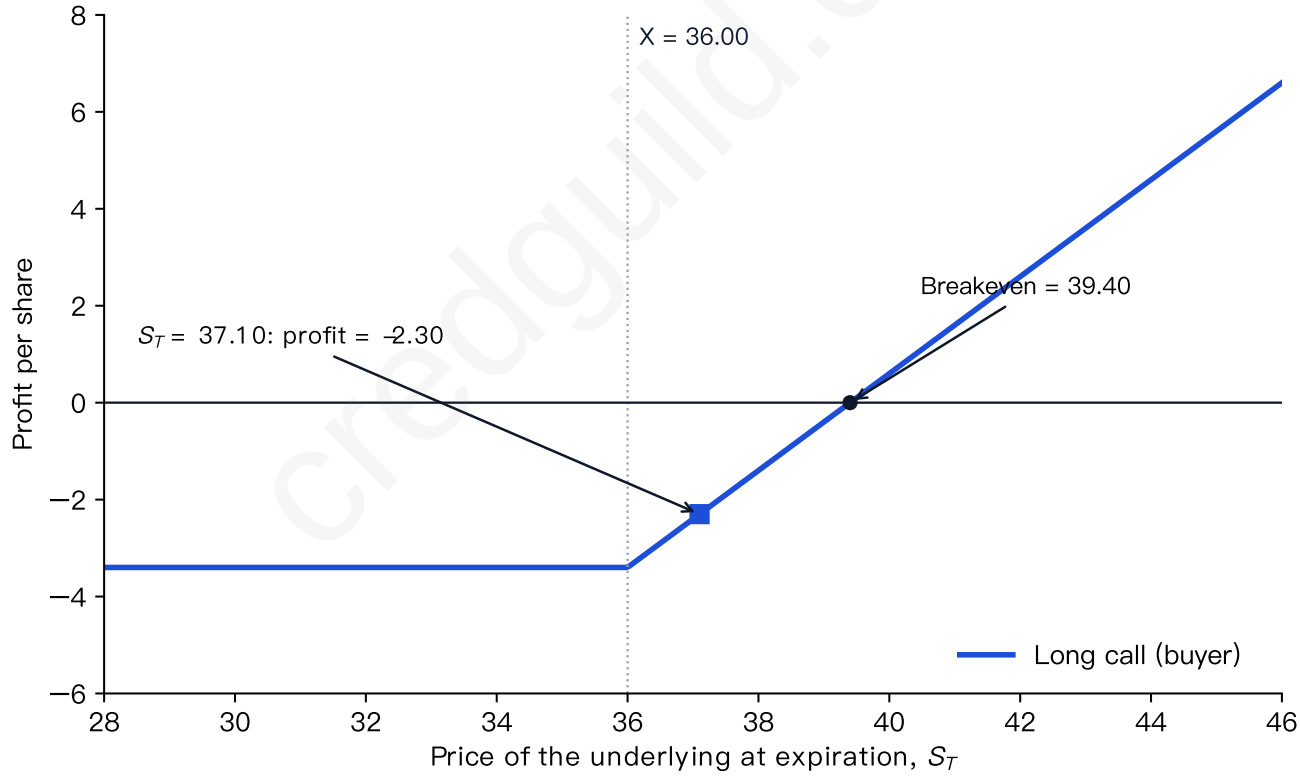
Question 286 **Answer: B**

At expiration the call is in the money by $1.10, so Grant exercises it and recovers part of the premium. His net result is the exercise value minus the $3.40 premium, a loss of $2.30. The share price when he bought the call ($38.90) does not affect the result.

$$c_T = \max(0,\ 37.10 - 36.00) = \$1.10$$

$$\text{Profit} = c_T - c_0 = 1.10 - 3.40 = -\$2.30$$

Breakeven $= X + c_0 = 36.00 + 3.40 = \$39.40$; the share price of $37.10 is below it, so there is a loss.



Long call profit: exercise price $36.00, premium $3.40

Why the other options are wrong

- **A.** A loss of the full $3.40 premium would occur only if the call expired out of the money. Here $S_T > X$, so exercising recovers $1.10.

- **C.** +$2.30 has the sign reversed: the $1.10 exercise value is smaller than the $3.40 premium paid, so the position loses money.

Key takeaway Exercise whenever $S_T > X$. Even below breakeven, exercising reduces the loss.

Reading 71: Forward Commitment and Contingent Claim Features and Instruments. Notes: credguild.com/cfa/level-1/notes/derivatives/forward-vs-futures/

Question 287 **Answer: C**

Forward commitments legally bind both parties to carry out a specified action at a future date, so neither side can simply walk away. The underlying can be an individual asset, a stock index, a portfolio or a rate.

Why the other options are wrong

- **A.** Accurate. Forward commitments can be written on a stock index or a portfolio as well as on single assets.
- **B.** Accurate. Both parties are legally bound to perform, which is what separates a forward commitment from a contingent claim.

Key takeaway A forward commitment binds both sides. Only the holder of a contingent claim, such as an option, has the right to walk away.

Reading 71: Forward Commitment and Contingent Claim Features and Instruments. Notes: credguild.com/cfa/level-1/notes/derivatives/forward-vs-futures/

Question 288 **Answer: B**

Selling a forward or futures contract usually creates short exposure without borrowing and selling the physical commodity. This operational advantage is especially important for assets that are difficult to short in the cash market.

Why the other options are wrong

- **A.** A derivatives hedge can still have basis risk when its underlying or settlement date does not match the exposure.
- **C.** Derivatives often provide substantial implicit leverage; they do not remove it.

Key takeaway Derivatives can make short exposure practical when a cash market short sale is difficult or impossible.

Reading 72: Derivative Benefits, Risks, and Issuer and Investor Uses. Notes: credguild.com/cfa/level-1/notes/derivatives/derivative-benefits-risks-and-issuer-and-investor-uses/

Question 289 **Answer: C**

Basis risk arises when the underlying of a derivative differs from the position being hedged, or when the hedge horizon differs from the derivative's settlement date. Returns on 40 regional bank stocks can diverge from returns on a broad index, so the index forward reduces the portfolio's risk but does not remove it.

Why the other options are wrong

- **A.** The forward's underlying, grade and date all match the planned sale, so the hedge leaves little basis risk. The main remaining risk is counterparty credit risk on the forward.
- **B.** The forward is in the same currency, for the same amount and on the same date as the invoice, so its value moves one for one with the exposure. There is no mismatch to create basis risk.

Key takeaway Look for a mismatch: a different underlying (an index against a narrower portfolio) or a different date (settlement after the exposure ends) creates basis risk.

Reading 72: Derivative Benefits, Risks, and Issuer and Investor Uses. Notes: credguild.com/cfa/level-1/notes/derivatives/derivative-benefits-risks-and-issuer-and-investor-uses/

Question 290 **Answer: A**

A fair value hedge offsets changes in the balance-sheet value of an asset or liability. By paying floating and receiving fixed, Marlowe effectively converts its fixed-rate liability into a low-duration floating-rate one, so changes in the swap's value offset changes in the fair value of the notes.

Why the other options are wrong

- **B.** A cash flow hedge would apply if the swap converted a floating-rate liability into fixed-rate payments, making interest cash flows certain. Marlowe's notes already pay a fixed rate, and the hedge targets their value.
- **C.** A net investment hedge reduces the volatility of the reported value of a foreign subsidiary's equity. No foreign subsidiary is involved.

Key takeaway A swap on fixed-rate debt that stabilizes its value is a fair value hedge; a swap on floating-rate debt that fixes its payments is a cash flow hedge.

Reading 72: Derivative Benefits, Risks, and Issuer and Investor Uses. Notes: credguild.com/cfa/level-1/notes/derivatives/derivative-benefits-risks-and-issuer-and-investor-uses/

Question 291 **Answer: A**

Derivative valuation assumes that any arbitrage opportunity is quickly traded away when it appears. That trading drives assets with identical future cash flows to the same price. It does not require that arbitrage never happens, and it makes no assumption about investors' attitude to risk.

Why the other options are wrong

- **B.** No-arbitrage pricing discounts at the risk-free rate because a position combining the derivative with its replicating portfolio (one long, the other short) has a certain payoff. The result does not depend on investors' risk preferences, so no assumption that investors are risk neutral is needed.
- **C.** Arbitrage opportunities can and do arise (small ones may even persist when transaction costs exceed the gain); the assumption is that they are quickly eliminated.

Key takeaway No-arbitrage pricing assumes that arbitrage is competed away quickly, so identical payoffs have identical prices.

Reading 73: Arbitrage, Replication, and the Cost of Carry in Pricing Derivatives. Notes: credguild.com/cfa/level-1/notes/derivatives/arbitrage-replication-and-the-cost-of-carry-in-pricing-derivatives/

Question 292 **Answer: A**

Arbitrage is possible whenever the forward price differs from the future value of the spot price. Here the no-arbitrage price is $83.20, so the quoted $82.50 is too low: buy the forward and replicate a short forward by shorting the share and investing the proceeds.

$$S_0(1+R_f)^T = 80.00 \times 1.04 = \$83.20 > \$82.50$$

Today: short the share (+$80.00), invest at 4%, buy the forward at $82.50 (no cost). Net outlay 0.

In one year: investment pays $80 \times 1.04 = \$83.20$; pay $82.50 for the share under the forward and return it to close the short. Profit $= 83.20 - 82.50 = \$0.70$, riskless.

Why the other options are wrong

- **B.** Selling the forward and carrying the share is the arbitrage when the forward is too expensive. At $82.50 it would lose $83.20 - 82.50 = \$0.70$.
- **C.** Comparing the forward price with the spot price ignores the financing cost. The right benchmark is $S_0(1 + R_f)^T = \$83.20$, and the quote is below it.

Key takeaway If the forward is too cheap, buy the forward, short the spot asset and lend the proceeds. If it is too expensive, sell the forward, borrow and buy the spot asset.

Reading 73: Arbitrage, Replication, and the Cost of Carry in Pricing Derivatives. Notes: credguild.com/cfa/level-1/notes/derivatives/arbitrage-replication-and-the-cost-of-carry-in-pricing-derivatives/

Question 293 **Answer: B**

When the costs of holding the underlying exceed the benefits, the net cost of carry is positive, which raises the no-arbitrage forward price above the level it would have with no costs or benefits.

$$F_0(T) = [S_0 + PV_0(\text{cost}) - PV_0(\text{benefit})](1 + R_f)^T$$

For Q, $PV_0(\text{cost}) - PV_0(\text{benefit}) > 0$, so $F_Q > S_0(1 + R_f)^T = F_P$.

Why the other options are wrong

- **A.** A lower forward price would result if the benefits of holding (convenience yield) exceeded the costs.
- **C.** Holding costs and benefits do affect the forward price; they cancel only if they are equal in present value.

Key takeaway Net costs raise the forward price; net benefits lower it.

Reading 73: Arbitrage, Replication, and the Cost of Carry in Pricing Derivatives. Notes: credguild.com/cfa/level-1/notes/derivatives/arbitrage-replication-and-the-cost-of-carry-in-pricing-derivatives/

Question 294 **Answer: C**

For an underlying that is costless to hold and pays nothing, a long forward's value before expiration is the spot price less the present value of the forward price. Four months remain, so the forward price is discounted for 4/12 of a year.

$$V_t = S_t - \frac{F_0(T)}{(1 + R_f)^{T-t}} = 57.00 - \frac{55.00}{1.03^{4/12}} = 57.00 - \frac{55.00}{1.009902} = 57.00 - 54.46 = \$2.54$$

Why the other options are wrong

- **A.** $1.98 is the present value of the difference, $(57 - 55)/1.03^{4/12}$. It wrongly discounts the spot price as well as the forward price.
- **B.** $2.00 is the undiscounted difference between spot and forward prices. That would be the value only at expiration.

Key takeaway Discount only the forward price, for the time remaining $(T - t)$.

Reading 74: Pricing and Valuation of Forward Contracts and for an Underlying With Varying Maturities. Notes: credguild.com/cfa/level-1/notes/derivatives/pricing-and-valuation-of-forward-contracts-and-for-an-underlying-with-varying-maturities/

Question 295 **Answer: A**

The 1y2y rate is the rate for a 2-year loan starting in one year. Investing for three years at the 3-year spot rate must give the same result as investing for one year at the 1-year spot rate and then for two years at the 1y2y rate.

$$(1+Z_3)^3 = (1+Z_1)(1+F_{1,2})^2$$

$$F_{1,2} = \left[\frac{1.031^3}{1.024}\right]^{1/2} - 1 = \left[\frac{1.095913}{1.024}\right]^{1/2} - 1 = 1.070227^{1/2} - 1 = 3.45\%$$

Why the other options are wrong

- **B.** 3.70% is the 2y1y rate (a 1-year loan starting in two years), $1.031^3/1.028^2 - 1$. The first number in the notation is the start date and the second is the length of the loan.
- **C.** 7.02% is the cumulative 2-year forward return, $1.031^3/1.024 - 1$. It has not been converted to an annual rate by taking the square root.

Key takeaway AyBy: divide $(1+Z_{A+B})^{A+B}$ by $(1+Z_A)^A$, then take the B-th root.

Reading 74: Pricing and Valuation of Forward Contracts and for an Underlying With Varying Maturities. Notes: credguild.com/cfa/level-1/notes/derivatives/pricing-and-valuation-of-forward-contracts-and-for-an-underlying-with-varying-maturities/

Question 296 **Answer: B**

A future lender or investor wants to protect against a fall in MRR. Receiving the fixed FRA rate and paying MRR produces a gain when MRR falls, offsetting the lower return earned on the future investment.

Why the other options are wrong

- **A.** Paying fixed and receiving MRR benefits from rising rates and is the hedge for a future borrower.
- **C.** An FRA settles a single net payment based on the difference between the fixed rate and MRR; one party does not receive both legs.

Key takeaway A future borrower pays fixed and receives floating; a future lender receives fixed and pays floating.

Reading 74: Pricing and Valuation of Forward Contracts and for an Underlying With Varying Maturities. Notes: credguild.com/cfa/level-1/notes/derivatives/pricing-and-valuation-of-forward-contracts-and-for-an-underlying-with-varying-maturities/

Question 297 **Answer: C**

The daily mark-to-market credits the trader's account with the day's gain and resets the futures price to the new settlement price. Because the gain has already been paid, a contract at the new price of 4,180 has a value of zero again.

Gain credited $= (4{,}180 - 4{,}120) \times 50 = 3{,}000$.

New contract price $= 4{,}180$; value after mark-to-market $= 0$.

Why the other options are wrong

- **A.** The price does change, but the change in value is only temporary. Once the gain is settled in cash, the value returns to zero.
- **B.** This describes a forward without mark-to-market, whose price is fixed while its value moves. A futures price is reset every day.

Key takeaway A futures price resets daily and its value goes back to zero; a forward price is fixed while its value fluctuates.

Reading 75: Pricing and Valuation of Futures Contracts. Notes: credguild.com/cfa/level-1/notes/derivatives/pricing-and-valuation-of-futures-contracts/

Question 298 **Answer: A**

Idris describes a positive correlation between interest rates and the underlying's price. Daily settlement then gives the long futures cash (excess margin) when the price rises and rates are high, so it can be reinvested at high rates, and requires deposits when the price falls and rates are low, so the opportunity cost of those deposits is small. That makes the futures more desirable than the forward.

Why the other options are wrong

- **B.** The forward is preferred when the correlation is negative, which is the opposite of what Idris observes.
- **C.** Equal attractiveness requires interest rates that are constant or uncorrelated with the futures price.

Key takeaway Positive correlation between rates and the underlying's price makes long futures worth more than long forwards.

Reading 75: Pricing and Valuation of Futures Contracts. Notes: credguild.com/cfa/level-1/notes/derivatives/pricing-and-valuation-of-futures-contracts/

Question 299 **Answer: B**

Interest rate futures are quoted as 100 minus the rate, so a price drop from 96.40 to 96.25 means the implied MRR rose from 3.60% to 3.75%, a 15 bp increase. A long futures position loses when rates rise, by the basis point value per contract for each basis point.

Implied MRR: $100 - 96.40 = 3.60\%$ and $100 - 96.25 = 3.75\% \Rightarrow +15$ bp.

$$\text{BPV} = 1{,}000{,}000 \times 0.25 \times 0.0001 = \$25$$

$$\text{Change} = -15 \times 25 \times 8 = -\$3{,}000$$

Why the other options are wrong

- **A.** \$12,000 uses a BPV of \$100 per contract. It ignores that the rate applies to a 3-month period (0.25 year).
- **C.** The sign is reversed. A falling futures price (rising rate) produces a loss for the long.

Key takeaway Rate futures price $= 100 - \text{MRR}$; $\text{BPV} = \text{notional} \times \text{period} \times 0.0001$; longs lose when rates rise.

Reading 75: Pricing and Valuation of Futures Contracts. Notes: credguild.com/cfa/level-1/notes/derivatives/pricing-and-valuation-of-futures-contracts/

Question 300 **Answer: B**

Because every FRA in the series uses the same contract rate (the swap fixed rate), the individual FRAs will generally not be zero-value contracts: some have positive and some negative value. A swap entered at market terms has zero value at initiation, so the FRA values must add up to zero at that date.

Why the other options are wrong

- **A.** Zero-value FRAs would each need their own no-arbitrage contract rate. With a single common rate, individual values are generally non-zero; only their sum is zero.
- **C.** The zero-sum condition applies at initiation, when the swap is priced to have zero value. At expiration, the values reflect realized rates and need not sum to zero.

Key takeaway A swap is a series of off-market FRAs whose values sum to zero at inception.

Reading 76: Pricing and Valuation of Interest Rates and Other Swaps. Notes: credguild.com/cfa/level-1/notes/derivatives/interest-rate-swap/

Question 301 **Answer: C**

The fixed-rate payer receives floating payments. Higher expected MRRs raise the present value of the floating payments it will receive relative to the fixed payments it owes, so the swap's value to Orsolya increases. The swap price, the fixed rate set in the contract, does not change.

Why the other options are wrong

- **A.** The direction is reversed: a rise in expected rates increases the value of the fixed-rate payer's position (it would decrease the floating-rate payer's).
- **B.** The value rises, but the price is the fixed rate agreed at inception and does not move with market rates.

Key takeaway When expected rates rise, the fixed-rate payer gains and the floating-rate payer loses. The swap price does not change.

Reading 76: Pricing and Valuation of Interest Rates and Other Swaps. Notes: credguild.com/cfa/level-1/notes/derivatives/interest-rate-swap/

Question 302 **Answer: A**

The floating-rate payer pays MRR and receives fixed payments on the notional principal. Borrowing at a floating rate (a floating-rate loan or note) and investing the proceeds in a fixed-rate bond produces the same net cash flows.

Why the other options are wrong

- **B.** Borrowing at a fixed rate creates fixed payments, the opposite of the floating-rate payer's obligation, and zero-value FRAs would not replicate the swap anyway.
- **C.** The swap's net payments are equivalent to a series of FRAs that all carry the swap's single fixed rate, so those FRAs would generally not be zero-value FRAs; zero-value FRAs would each have a different contract rate. A floating-rate loan combined with zero-value FRAs therefore does not reproduce the floating-rate payer's cash flows.

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Key takeaway The floating-rate payer's position equals a short floating-rate note plus a long fixed-rate bond; the fixed-rate payer's position is the reverse.

Reading 76: Pricing and Valuation of Interest Rates and Other Swaps. Notes: credguild.com/cfa/level-1/notes/derivatives/interest-rate-swap/

Question 303 **Answer: C**

The call is in the money because it lets Novak buy at $62 a stock worth $66 ($S - X = 4$). The put is in the money because it lets her sell at $70 a stock worth $66 ($X - S = 4$).

Why the other options are wrong

- **A.** Each option would give a positive payoff if exercised now, so both are in the money.
- **B.** The call is in the money, but so is the put, because its exercise price is above the market price.

Key takeaway Check each option separately: call ITM if $S > X$, put ITM if $S < X$. With different strikes both can be in the money at once.

Reading 77: Pricing and Valuation of Options. Notes: credguild.com/cfa/level-1/notes/derivatives/pricing-and-valuation-of-options/

Question 304 **Answer: C**

A put pays off when the stock price is below the exercise price. Its exercise value is therefore $\max(0,\ X - S)$: the exercise price less the stock price when that amount is positive, and zero otherwise. Exercise value is also called intrinsic value.

Why the other options are wrong

- **A.** $S - X$ is the exercise value of a call. For a put the subtraction runs the other way.
- **B.** Time value is the market price minus the exercise value. Adding the two gives more than the premium itself.

Key takeaway Call exercise value $= \max(0,\ S - X)$; put exercise value $= \max(0,\ X - S)$. Time value is the premium minus the exercise value.

Reading 77: Pricing and Valuation of Options. Notes: credguild.com/cfa/level-1/notes/derivatives/pricing-and-valuation-of-options/

Question 305 **Answer: A**

Forward commitments are priced so that their value at initiation is zero to both parties, and both sides face essentially unlimited gains and losses. An option buyer pays a premium, so the option has a positive value at initiation, and the payoffs are one-sided (the buyer's loss and the writer's gain are limited to the premium). Options are therefore priced by replication: combining the option with a pure discount bond and a long or short position in the underlying.

Why the other options are wrong

- **B.** Contingent claims are priced by replication: the option is combined with a risk-free pure discount bond and a position in the underlying.
- **C.** No-arbitrage and replication pricing discount at the risk-free rate. A risk-adjusted discount rate is not needed.

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Key takeaway Forwards have zero initial value and two-sided payoffs. Options have a positive premium and one-sided payoffs, so they are priced by replication.

Reading 77: Pricing and Valuation of Options. Notes: credguild.com/cfa/level-1/notes/derivatives/pricing-and-valuation-of-options/

Question 306 Answer: C

A higher risk-free rate raises call values and lowers put values. Reyes is long the call, so that position gains; he is short the put, so the fall in the put's value also benefits him. Both positions become more valuable.

Why the other options are wrong

- **A.** Neither position would gain only if the rate change hurt both of them. Because a rate increase raises call values and lowers put values, the long call gains and the short put also gains.
- **B.** Only one position would gain if Reyes were long both options (or short both), because the rate moves call and put values in opposite directions. Being long the call and short the put, he benefits on both.

Key takeaway Rates move call and put values in opposite directions; then flip the sign for any short position.

Reading 77: Pricing and Valuation of Options. Notes: credguild.com/cfa/level-1/notes/derivatives/pricing-and-valuation-of-options/

Question 307 Answer: B

Solving put–call parity for the put gives $p = c - S + X(1 + R_f)^{-T}$: a long call, a short stock position and an investment of $PV(X)$ in the risk-free bond (a long bond position). At expiration the combination pays exactly $\max(0, X - S_T)$.

Why the other options are wrong

- **A.** Borrowing (short bond) has the wrong sign; the put equation adds $PV(X)$, so the bond is held long.
- **C.** This is the negative of the synthetic put (the position of someone who has sold a put synthetically).

Key takeaway Put side of parity: $p = c - S + PV(X)$, so hold a long call, short stock and a long bond.

Reading 78: Option Replication Using Put-Call Parity. Notes: credguild.com/cfa/level-1/notes/derivatives/put-call-parity/

Question 308 Answer: A

If, when the debt matures, the firm's assets are worth less than the face value owed, the shareholders default and in effect "put" the assets to the debtholders at a price equal to the face value of the debt. The debtholders have written this put, so their claim is worth the principal discounted at the risk-free rate less the value of the put; that put is the firm's credit (default) risk.

Why the other options are wrong

- **B.** The shareholders' residual claim can be viewed as a call on the firm's assets, but credit risk itself is the put the debtholders have written to the shareholders.
- **C.** The direction is wrong: shareholders hold the options (a call, or the assets plus a put); debtholders are the writers.

Key takeaway Debt = risk-free $PV(D)$ − put; equity = call on the assets with exercise price D.

Reading 78: Option Replication Using Put-Call Parity. Notes: credguild.com/cfa/level-1/notes/derivatives/put-call-parity/

Question 309 **Answer: A**

Put–call parity gives the put as the call minus the stock plus the present value of the exercise price, discounting the exercise price at the risk-free rate over the 6-month life.

$$p = c - S + X(1 + R_f)^{-T}$$

$PV(X) = 70.00/1.04^{0.5} = 70.00/1.019804 = 68.641$ $p = 6.20 - 73.00 + 68.641 = 1.841 \approx \$1.84$

Why the other options are wrong

- **B.** \$3.20 uses the undiscounted exercise price ($6.20 - 73.00 + 70.00$); parity requires $PV(X)$.
- **C.** \$10.56 reverses the signs, computing $c + S - PV(X) = 6.20 + 73.00 - 68.64$.

Key takeaway Always discount X over the option's remaining life in put–call parity.

Reading 78: Option Replication Using Put-Call Parity. Notes: credguild.com/cfa/level-1/notes/derivatives/put-call-parity/

Question 310 **Answer: B**

The hedge ratio equals the spread of the call's payoffs divided by the spread of the share prices. It is a ratio of payoffs, so no discounting or compounding at the risk-free rate is involved.

Call payoffs: $c_1^u = \max(0,\ 50 - 44) = 6$; $c_1^d = \max(0,\ 32 - 44) = 0$.

$$h = \frac{c_1^u - c_1^d}{S_1^u - S_1^d} = \frac{6 - 0}{50 - 32} = \frac{6}{18} = 0.333$$

Check: up-move value $= 0.333(50) - 6 = 10.67$; down-move value $= 0.333(32) - 0 = 10.67$. The portfolio of 0.333 shares per short call is worth 10.67 in both states.

Why the other options are wrong

- **A.** 0.32 divides the hedge ratio by 1.04 ($0.3333/1.04 = 0.3205$); the risk-free rate is used to value the portfolio and plays no part in computing h.
- **C.** 0.35 multiplies the hedge ratio by 1.04 ($0.3333 \times 1.04 = 0.3467$); again, h is not adjusted for interest.

Key takeaway $h = (c_1^u - c_1^d)/(S_1^u - S_1^d)$. The risk-free rate enters only when the certain portfolio value is discounted.

Reading 79: Valuing a Derivative Using a One-Period Binomial Model. Notes: credguild.com/cfa/level-1/notes/derivatives/binomial-option-pricing-model/

Question 311 **Answer: A**

Risk-neutral valuation weights the option's payoffs by the risk-neutral (pseudo-)probabilities and then discounts the expected payoff one period at the risk-free rate. The analyst's estimate of the actual probability of an up-move plays no role.

Payoffs at expiration: $c_1^u = \max(0,\ 78 - 65) = 13$; $c_1^d = \max(0,\ 51 - 65) = 0$.

Risk-neutral probabilities: $\pi_U = 0.40$, $\pi_D = 1 - 0.40 = 0.60$.

Expected payoff: $0.40(13) + 0.60(0) = 5.20$

$$c_0 = \frac{\pi_U\, c_1^u + \pi_D\, c_1^d}{1 + R_f} = \frac{5.20}{1.03} = 5.049 \approx \$5.05$$

Check with the hedge approach: $h = 13/(78 - 51) = 0.4815$; $V_1 = 0.4815(51) = 24.56$; $V_0 = 24.56/1.03 = 23.84$; $c_0 = 0.4815(60) - 23.84 = 5.05$. (The given probability is consistent with the tree: $(1.03 - 0.85)/(1.30 - 0.85) = 0.40$.)

Why the other options are wrong

- **B.** \$5.20 is the risk-neutral expected payoff 0.40×13 without discounting it one year at the risk-free rate.
- **C.** \$6.94 weights the payoff by the analyst's actual probability instead of the risk-neutral probability: $0.55 \times 13/1.03$.

Key takeaway Risk-neutral value = expected payoff using risk-neutral (not actual) probabilities, discounted at the risk-free rate.

Reading 79: Valuing a Derivative Using a One-Period Binomial Model. Notes: credguild.com/cfa/level-1/notes/derivatives/binomial-option-pricing-model/

Question 312 **Answer: C**

The hedge portfolio is worth $V_0 = hS_0 - c_0$, and because its end-of-period value is certain, V_0 is the present value of a riskless amount. Rearranged, $c_0 = hS_0 - V_0$: the call is equivalent to owning h shares while owing the riskless amount V_0, that is, buying the shares partly with money borrowed at the risk-free rate. This leveraged long position in the underlying has the same payoff as the call in both states: 4 after an up-move and 0 after a down-move in the illustration below.

Illustration. $S_0 = 30$; $S_1^u = 36$, $S_1^d = 25$; $X = 32$; risk-free rate 3% for the period.

$c_1^u = 4$, $c_1^d = 0$, so $h = 4/(36 - 25) = 0.3636$.

Riskless value of the hedge: $V_1 = 0.3636 \times 25 = 9.091$, so $V_0 = 9.091/1.03 = 8.826$.

$c_0 = 0.3636 \times 30 - 8.826 = 10.909 - 8.826 = 2.083$.

Replication: buy 0.3636 shares for 10.909 and borrow 8.826. Up-move: $0.3636 \times 36 - 9.091 = 4$. Down-move: $0.3636 \times 25 - 9.091 = 0$. These are the call's payoffs.

Why the other options are wrong

- **A.** Lending adds a riskless positive amount to the share position, so the portfolio would be worth more than the call after either move. In the hedge, $V_0 = hS_0 - c_0$ is the present value of a positive riskless amount, and $c_0 = hS_0 - V_0$ shows that the replicating portfolio owes that amount: it borrows.
- **B.** Short shares plus lending gains when the price falls. That combination replicates a put: $p_0 = V_0 - hS_0$.

Key takeaway In a one-period binomial model, a call can be replicated by buying h shares with partly borrowed money, and a put by selling h shares short and lending at the risk-free rate.

Reading 79: Valuing a Derivative Using a One-Period Binomial Model. Notes: credguild.com/cfa/level-1/notes/derivatives/binomial-option-pricing-model/

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CFA® PROGRAM LEVEL I · FREE PRACTICE QUESTIONS

Alternative Investments

Questions 313–335 · 7 readings

80 Alternative Investment Features, Methods, and Structures

Question 313

A trustee new to the investment committee of a family foundation asks what sets alternative investments apart as a group. Which statement is *most accurate*?

A They trade in markets that tend to be more efficient than those for listed stocks and bonds.

B They cover investments other than long-only holdings of cash and publicly traded stocks and bonds.

C Their returns tend to be highly correlated with the returns on traditional investments.

Question 314

A large insurer is weighing whether to buy stakes in private companies itself instead of committing money to a private equity fund. Compared with fund investing, direct investing *most likely* offers:

A lower fees.

B broader diversification.

C smaller minimum investment amounts.

Question 315

A foundation holds stakes in both a hedge fund and a private equity fund. The management fee charged by the *hedge fund* is *most likely* calculated as a percentage of:

A assets under management.

B committed capital.

C invested capital.

Question 316

The partnership agreement of Halvorsen Growth Partners provides that, each time a portfolio company is sold, the profit on that sale is split between the general partner and the limited partners immediately, without waiting for the rest of the portfolio to be exited. This arrangement is *best* described as a:

A whole-of-fund waterfall.

B deal-by-deal waterfall.

C clawback provision.

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81 Hurdle Rate

Question 317

Two private equity funds each invested all of their investors' capital at inception and each made a single distribution. Fund Aldgate took in $60 million; at the end of Year 4 it distributed $84 million, and its remaining holdings were then valued at $24 million. Fund Brixton took in $50 million; at the end of Year 8 it distributed $70 million, and its remaining holdings were then valued at $20 million. Which statement is *most* accurate?

A Each fund's MOIC is 1.40, because only distributed capital counts as returned.

B Each fund's MOIC is 1.80, so the two funds earned the same annualized return.

C Each fund's MOIC is 1.80, but Aldgate earned the higher annualized return.

Question 318

Brackwater Credit Partners, a hedge fund whose lockup period has expired for all investors, has a 10-day redemption notice period. It holds a few thinly traded corporate bonds, and each position is a large part of that bond's outstanding issue. In one month two issuers default, the fund's net asset value falls by 12%, its prime broker makes margin calls, and investors ask to redeem 40% of the partnership interests. The *most likely* result is that:

A the 10-day notice period gives the fund enough time to sell 40% of its holdings in an orderly way.

B forced sales are likely to push prices lower, deepen losses and prompt further redemption requests.

C prices received will be largely unaffected, since redemptions are paid only after the notice period.

Question 319

A private equity fund invests $60 million in Ashby Robotics and $40 million in Corran Freight. In the same year, Ashby is sold for $81 million and Corran is liquidated for $34 million. The general partner's carried interest is 20%, profits are distributed under a deal-by-deal (American-style) waterfall, and there is no clawback provision. The limited partners' return on the $100 million, after carried interest, is *closest* to:

A 15.0%.

B 12.0%.

C 10.8%.

82 Mezzanine Financing

Question 320

A private equity firm acquires Ashcombe Textiles in a leveraged buyout. As part of the deal, the firm removes Ashcombe's current executives and installs a leadership team it has recruited from outside the company. This transaction is *best* described as a:

A management buyout.

B management buy-in.

C private investment in public equity.

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Question 321

A private equity fund exits its stake in Norquay Logistics by selling the company to Tidewell Freight, a larger rival in the same industry that expects cost synergies from the deal. This exit is *best* described as a(n):

A secondary sale.

B trade sale.

C initial public offering.

Question 322

To make fair comparisons, a consultant groups private equity funds by vintage year, so that each group holds funds that began putting capital to work under similar market conditions. A fund's vintage year is the year in which it:

A receives its first capital commitment.

B makes its first investment.

C exits its first investment.

83 Real Estate and Infrastructure

Question 323

A pension fund buys a portfolio of commercial mortgage-backed securities. Within the basic four-quadrant classification of real estate investments, this holding is *best* classified as:

A public equity.

B private debt.

C public debt.

Question 324

Which of the following is *least likely* to be classified as social infrastructure?

A Schools.

B Waste treatment facilities.

C Health care facilities.

Question 325

Which type of infrastructure investment typically offers the highest risk and the highest potential return?

A Greenfield.

B Secondary stage.

C Brownfield.

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84 Natural Resources

Question 326

An investor in land-based natural resources wants the most regular annual cash flow. Which of the following is *most likely* to provide it?

A Timberland.

B Farmland.

C Raw land.

Question 327

For a particular commodity, the convenience yield outweighs the storage and financing costs of holding the physical good. In this situation:

A the spot price is below the futures price.

B long-only futures investors see lower returns.

C the forward curve exhibits backwardation.

Question 328

Which of the following is *least likely* to be a benefit of adding commodities to a portfolio of stocks and bonds?

A Current income.

B Diversification.

C Inflation hedge.

85 High Water Mark

Question 329

An adviser makes three claims to a client about hedge funds as a vehicle. Which claim is *least* accurate?

A They are generally offered only to investors who meet accredited, qualified or institutional-investor thresholds.

B Their use of leverage and derivatives can give them a risk and return profile quite unlike that of the assets they hold.

C They are regulated about as heavily as mutual funds, which confines them to a narrow set of permitted strategies.

Question 330

A hedge fund that follows a macro strategy is *most likely* to make which of the following trades?

A Buying the shares of a company that has agreed to be acquired and selling short the acquirer's shares.

B Buying a company's convertible bonds and selling short the same company's common shares.

C Selling a country's currency and its government bond futures ahead of an expected rise in its inflation.

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Question 331

The Northgate Teachers' Pension Plan is choosing between investing in a hedge fund's commingled vehicle and hiring the same manager through a separately managed account (SMA). Which of the following is a drawback of the SMA route?

A Fees that are often negotiated lower than the pooled vehicle charges.

B An investor-specific investment mandate tailored to the plan.

C Weaker alignment of interests, because the manager has no stake in the account.

Question 332

An analyst reviewing a hedge fund index database notes three practices. Each one illustrates a different hedge fund index bias: survivorship bias, backfill bias or selection bias. Which practice is the example of selection bias?

A Two funds running almost identical convertible arbitrage books are placed in different strategy categories by the index provider.

B A fund that suffered heavy losses and closed is removed from the index, and its record no longer appears in the index history.

C A fund joins the index after three strong years, and its returns for those earlier years are added to the index history.

86 Introduction to Digital Assets

Question 333

Two blockchains differ in how new blocks are accepted. On the first, miners compete to solve a cryptographic problem before a block is locked in. On the second, validators pledge some of their own holdings as collateral to vouch for a block, and further validators then confirm it. The two blockchains differ in their:

A network of participants.

B digital ledger.

C consensus protocol.

Question 334

Kestrel Robotics is weighing two ways of raising new capital: a regulated initial public offering (IPO) or an initial coin offering (ICO). Compared with the IPO, the ICO would *most likely* involve:

A a longer capital-raising period.

B more voting rights for investors.

C lower issuance costs.

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Question 335

An investment committee is debating whether to add digital assets to a multi-asset portfolio. Regarding their role as an investment class, which statement is *most accurate*?

A Their returns have historically moved closely with stocks and bonds.

B Their low historical correlations with traditional assets may aid diversification.

C They have behaved as a relatively stable, low-volatility asset class.

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ALTERNATIVE INVESTMENTS

Answers and explanations

Answer key: 313. B · 314. A · 315. A · 316. B · 317. C · 318. B · 319. C · 320. B · 321. B · 322. B · 323. C · 324. B · 325. A · 326. B · 327. C · 328. A · 329. C · 330. C · 331. C · 332. A · 333. C · 334. C · 335. B

Question 313 **Answer: B**

Alternative investments are defined by exclusion: traditional investments are long-only positions in cash and publicly traded stocks and bonds, and everything else is an alternative. The group includes private capital, real assets such as real estate, infrastructure and natural resources, and hedge funds, which may use short positions, leverage and derivatives.

Why the other options are wrong

- **A.** The reverse holds. Markets for some alternatives are thought to be less efficient than public stock and bond markets, which is one reason investors hope to earn higher returns from them.
- **C.** Alternatives are valued for their relatively low correlation with stocks and bonds, which is the source of their diversification benefit. Correlations can rise in periods of stress, but they are not typically high.

Key takeaway Traditional means long-only cash, listed stocks and listed bonds. Anything outside that definition is an alternative investment. Alternatives tend to have relatively low correlation with traditional assets, and some trade in markets that may be less efficient.

Reading 80: Alternative Investment Features, Methods, and Structures. Notes: credguild.com/cfa/level-1/notes/alternative-investments/alternative-investment-features-methods-and-structures/

Question 314 **Answer: A**

Direct investing avoids paying management and performance fees to an outside manager, so its fees are lower. Its drawbacks are less diversification, larger minimum investments and the need for in-house expertise to evaluate deals.

Why the other options are wrong

- **B.** Fund investing gives access to a broader, more diversified pool of assets. A direct investor typically holds fewer, larger positions.
- **C.** Direct deals require larger amounts. In a fund, the cost of each investment is shared with other investors.

Key takeaway Direct investing: lower fees and more control, but less diversification, larger amounts and more expertise needed.

Reading 80: Alternative Investment Features, Methods, and Structures. Notes: credguild.com/cfa/level-1/notes/alternative-investments/alternative-investment-features-methods-and-structures/

Question 315 **Answer: A**

Hedge fund management fees are a percentage of assets under management, typically the fund's net asset value. The private equity fund, by contrast, would charge its management fee on committed capital.

Why the other options are wrong

- **B.** Committed capital is the basis for private equity fund management fees. Hedge funds charge on assets under management.

- **C.** Neither structure normally uses invested capital. Private equity funds use committed capital so the manager is not rewarded for deploying money quickly.

Key takeaway Hedge fund management fee: % of AUM (NAV). Private equity fund management fee: % of committed capital.

Reading 80: Alternative Investment Features, Methods, and Structures. Notes: credguild.com/cfa/level-1/notes/alternative-investments/alternative-investment-features-methods-and-structures/

Question 316 **Answer: B**

In a deal-by-deal waterfall (American waterfall), profits are distributed as each investment is sold and shared under the partnership agreement. This favors the GP, because performance fees can be paid before LPs have received all of their capital plus the hurdle rate.

Why the other options are wrong

- **A.** In a whole-of-fund (European) waterfall, LPs receive all distributions until they have recovered 100% of their capital plus the hurdle rate, usually after all investments are sold.
- **C.** A clawback provision lets LPs recover incentive fees already paid if later losses reverse earlier gains. It does not describe how each sale is distributed.

Key takeaway American = deal-by-deal (GP-friendly). European = whole-of-fund (LP-friendly).

Reading 80: Alternative Investment Features, Methods, and Structures. Notes: credguild.com/cfa/level-1/notes/alternative-investments/alternative-investment-features-methods-and-structures/

Question 317 **Answer: C**

The multiple of invested capital (MOIC) divides the total capital returned plus the value of the remaining assets by the total capital paid in. Both funds have a MOIC of 1.80. MOIC ignores the timing of cash flows, however. Aldgate reached 1.80 times its capital in four years and Brixton needed eight, so Aldgate's annualized return (its IRR) is much higher.

$$\text{MOIC} = \frac{\text{capital returned} + \text{value of remaining assets}}{\text{capital paid in}}$$

Aldgate: $(84 + 24)/60 = 1.80$. Brixton: $(70 + 20)/50 = 1.80$.

With one outflow at inception and all value measured at the end of year n, the annualized return (IRR) is $\text{MOIC}^{1/n} - 1$:

Aldgate: $1.80^{1/4} - 1 = 15.8\%$ a year. Brixton: $1.80^{1/8} - 1 = 7.6\%$ a year.

Why the other options are wrong

- **A.** 1.40 counts only the distributions ($84/60$ and $70/50$). MOIC also includes the value of the holdings that have not yet been realized.
- **B.** The MOICs are equal, but MOIC says nothing about how long the capital was tied up. The same multiple earned over four years and over eight years implies annualized returns of 15.8% and 7.6%.

Key takeaway MOIC is simple to compute and interpret but ignores timing; the IRR accounts for when cash flows occur and is the preferred measure when the manager controls that timing.

Reading 81: Alternative Investment Performance and Returns. Notes: credguild.com/cfa/level-1/notes/alternative-investments/hurdle-rate/

Question 318 Answer: B

Poor returns trigger redemption requests, and, like margin calls, redemptions can force a fund to sell at unfavorable prices and at bad times. Brackwater must raise cash quickly for both the margin calls and a 40% redemption, while its bonds are thinly traded and its positions are large relative to each issue. Selling them fast will depress their prices further, which lowers the value of the remaining interests and gives other investors a reason to redeem as well.

Why the other options are wrong

- **A.** Notice periods exist so that managers can reduce positions in an orderly way, but 10 days is short for selling 40% of a portfolio of large, thinly traded bond positions, and the margin calls add pressure to sell immediately.
- **C.** The notice period delays the payout, not the selling. The fund still has to sell large, illiquid positions within a short window, and its own sales will push the prices it receives down.

Key takeaway Redemptions after poor performance, like margin calls, can force sales at bad prices. Large, illiquid positions and short notice periods make the damage worse, which is why funds use lockups, notice periods, gates and redemption fees.

Reading 81: Alternative Investment Performance and Returns. Notes: credguild.com/cfa/level-1/notes/alternative-investments/hurdle-rate/

Question 319 Answer: C

Under a deal-by-deal waterfall, carried interest is paid on each profitable exit on its own. The GP earns 20% of Ashby's $21 million gain, and Corran's $6 million loss does not reduce that fee. Without a clawback, the limited partners cannot recover the part of the fee that exceeds 20% of the fund's net gain.

Carried interest on Ashby: $0.20 \times (81 - 60) = \$4.2$ million. Corran lost $40 - 34 = \$6$ million, so no fee is paid on it.

Proceeds to LPs: $81 + 34 - 4.2 = \$110.8$ million.

$$\text{LP return} = \frac{110.8}{100} - 1 = 10.8\%$$

Whole-of-fund comparison: net gain $= 115 - 100 = \$15$ million, fee $= \$3.0$ million, LP return $= 112/100 - 1 = 12.0\%$. A clawback would return the $4.2 - 3.0 = \$1.2$ million difference.

Why the other options are wrong

- **A.** 15.0% is the return before any carried interest, $115/100 - 1$. The GP's 20% share of the profit on the Ashby exit must be deducted.
- **B.** 12.0% is the result under a whole-of-fund (European-style) waterfall, or under a deal-by-deal waterfall with a clawback, where the fee is 20% of the $15 million net gain. The fund's terms use a deal-by-deal waterfall with no clawback.

Key takeaway Deal-by-deal: fee on each winning deal, losses ignored. Whole-of-fund: fee on the net gain across all deals. A clawback brings the deal-by-deal result back to the whole-of-fund result.

Reading 81: Alternative Investment Performance and Returns. Notes: credguild.com/cfa/level-1/notes/alternative-investments/hurdle-rate/

Question 320 **Answer: B**

In a management buy-in (MBI), the private equity manager replaces the company's existing management with a new team. In a management buyout, the existing team takes part in the purchase.

Why the other options are wrong

- **A.** In a management buyout, the *existing* management team participates in the purchase and stays on.
- **C.** A PIPE is a minority investment in a company that stays public. It is not a buyout of the whole company.

Key takeaway MBO = existing managers take part in the purchase; MBI = outside managers are brought in.

Reading 82: Investments in Private Capital: Equity and Debt. Notes: credguild.com/cfa/level-1/notes/alternative-investments/mezzanine-financing/

Question 321 **Answer: B**

A trade sale is the sale of a portfolio company to a strategic buyer, such as a competitor, by direct sale or auction. Strategic buyers often pay a premium because of the synergies they expect.

Why the other options are wrong

- **A.** A secondary sale is a sale to another private equity firm or group of financial investors. Tidewell is an operating competitor.
- **C.** An IPO sells some or all of the company's shares to the public.

Key takeaway Sale to a competitor or strategic buyer: trade sale. Sale to another PE firm: secondary sale. Sale to the public: IPO.

Reading 82: Investments in Private Capital: Equity and Debt. Notes: credguild.com/cfa/level-1/notes/alternative-investments/mezzanine-financing/

Question 322 **Answer: B**

The vintage year is the year a private equity or venture capital fund makes its first investment. Commitments may come earlier, because capital that has been committed is not necessarily deployed straight away.

Why the other options are wrong

- **A.** The first commitment can come well before the first investment, because there may be a lag before committed capital is called and invested. Some industry databases date funds by fundraising or first close, but the vintage year that captures the conditions in which capital was deployed is the year of the first investment.
- **C.** Exits happen years later, near the end of the holding period. They do not define the vintage year.

Key takeaway Vintage year = first investment. Compare funds of the same vintage.

Reading 82: Investments in Private Capital: Equity and Debt. Notes: credguild.com/cfa/level-1/notes/alternative-investments/mezzanine-financing/

Question 323 **Answer: C**

Real estate investments are classified as public or private, and as debt or equity. CMBS are traded securities that give a claim on pools of commercial mortgages, so they are public debt.

Why the other options are wrong

- **A.** Public equity would be shares of an equity REIT or a real estate company, which are ownership claims rather than claims on mortgages.
- **B.** Private debt would be a mortgage or loan held directly. CMBS are traded securities.

Key takeaway Debt vs. equity = lender vs. owner; public vs. private = traded securities vs. privately held interests.

Reading 83: Real Estate and Infrastructure. Notes: credguild.com/cfa/level-1/notes/alternative-investments/real-estate-and-infrastructure/

Question 324 **Answer: B**

Waste treatment facilities are utility assets, which are part of economic infrastructure. Schools and health care facilities are social infrastructure.

Why the other options are wrong

- **A.** Schools are social infrastructure.
- **C.** Health care facilities are social infrastructure.

Key takeaway Utilities (power, gas, water and waste treatment) are economic infrastructure.

Reading 83: Real Estate and Infrastructure. Notes: credguild.com/cfa/level-1/notes/alternative-investments/real-estate-and-infrastructure/

Question 325 **Answer: A**

Because a greenfield asset does not exist yet, its investors face construction risk and uncertainty about future demand, and they are paid for it with the most upside. At the other end, a fully operating secondary-stage facility with an established record of cash flows sits lowest on the risk-return scale. Brownfield assets lie between the two.

Why the other options are wrong

- **B.** Secondary-stage investments are fully operational and generate steady cash flows, so they have the lowest risk-return profile.
- **C.** Brownfield investments involve existing assets. They are riskier than secondary-stage investments but less risky than greenfield.

Key takeaway Risk/return: greenfield > brownfield > secondary stage.

Reading 83: Real Estate and Infrastructure. Notes: credguild.com/cfa/level-1/notes/alternative-investments/real-estate-and-infrastructure/

Question 326 **Answer: B**

Farmland produces income every year from leasing the land or from selling crops, which must be harvested within a short window. It therefore has the steadiest cash flows of the three.

Why the other options are wrong

- **A.** Timberland produces cash flow, but the owner decides when to harvest: it can let the trees keep growing when prices are low. Its cash flows are therefore less regular.

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- **C.** Raw land produces no output to sell. It may earn some lease income, but its return comes mainly from price appreciation, so it offers the least regular cash flow.

Key takeaway Cash-flow steadiness: farmland > timberland > raw land.

Reading 84: Natural Resources. Notes: credguild.com/cfa/level-1/notes/alternative-investments/natural-resources/

Question 327 Answer: C

If the convenience yield is large enough to more than offset storage and financing costs, the net cost of carry is negative and futures prices are below spot prices. This is backwardation. Backwardation raises the returns of long-only investors. The opposite case, where carrying costs dominate, is contango.

Why the other options are wrong

- **A.** A spot price below the futures price is contango, which occurs when carrying costs exceed the benefit of holding the good.
- **B.** Lower returns for long-only investors are a feature of contango. In backwardation, long-only returns are increased.

Key takeaway When the benefit of holding exceeds the carry cost, the market is in backwardation (futures < spot), which helps long-only investors.

Reading 84: Natural Resources. Notes: credguild.com/cfa/level-1/notes/alternative-investments/natural-resources/

Question 328 Answer: A

Holding a commodity produces no current income. Any return comes from price changes realized when it is sold. Commodities do offer diversification (low correlation with stocks and bonds) and an inflation hedge (their prices tend to rise with inflation).

Why the other options are wrong

- **B.** Diversification is a benefit: commodity returns have historically had low correlations with global equities and bonds.
- **C.** An inflation hedge is a benefit: commodity prices generally rise and fall with inflation, so their correlation with it is positive.

Key takeaway Commodities: diversification and inflation hedge, but no income from simply holding them.

Reading 84: Natural Resources. Notes: credguild.com/cfa/level-1/notes/alternative-investments/natural-resources/

Question 329 Answer: C

Hedge funds are private pooled vehicles that face light regulation and give managers wide latitude over strategy, leverage and instruments, so the claim that they are tightly regulated and strategy-constrained is false. The other statements are accurate: access is limited to investors meeting high suitability standards, and although most holdings are liquid stocks and bonds, leverage and derivatives change the fund's risk profile, which is why managing the fund's risk exposure matters.

Why the other options are wrong

- **A.** Accurate. Hedge funds are sold privately to investors who satisfy wealth or sophistication requirements.

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- **B.** Accurate. Leverage and derivatives can make the fund's risk and return behave very differently from the underlying debt and equity positions. For the same reason, owning mostly liquid assets does not make a hedge fund lower risk than, say, a private equity fund.

Key takeaway Hedge funds = private, lightly regulated, flexible. Liquid holdings do not equal low risk once leverage and derivatives are involved.

Reading 85: Hedge Funds. Notes: credguild.com/cfa/level-1/notes/alternative-investments/high-water-mark/

Question 330 **Answer: C**

Macro strategies belong to the opportunistic group of hedge fund strategies. They take long or short positions in equities, fixed income, currencies or commodities based on global economic trends and events. The view is top-down: a forecast of a country's inflation drives positions in its currency and bond market, not the analysis of a particular company.

Why the other options are wrong

- **A.** Buying a takeover target and shorting the acquirer is merger arbitrage, an event-driven strategy built around a specific corporate transaction.
- **B.** Exploiting price discrepancies between a convertible bond and the issuer's shares is convertible arbitrage, a relative value strategy.

Key takeaway Macro and managed futures are opportunistic strategies driven by economy-wide views; merger arbitrage is event-driven; convertible arbitrage is relative value.

Reading 85: Hedge Funds. Notes: credguild.com/cfa/level-1/notes/alternative-investments/high-water-mark/

Question 331 **Answer: C**

In an SMA the manager has no stake of its own in the account, so the manager's interests are less closely aligned with the investor's than in a commingled fund, where the manager often invests alongside the investors. Other SMA drawbacks are the heavier operational oversight it requires and the risk of receiving allocations of only the manager's most liquid trades.

Why the other options are wrong

- **A.** Lower negotiated fees are a benefit of an SMA, although the benefit can be offset if the account receives allocations of only the manager's most liquid trades.
- **B.** A more customizable portfolio with an investor-specific investment mandate is one of the main reasons large institutions choose an SMA.

Key takeaway SMA advantages: a portfolio tailored to the investor and often lower negotiated fees. SMA drawbacks: heavier operational oversight, weaker alignment because the manager has no capital at stake, and possibly receiving only the manager's most liquid trades.

Reading 85: Hedge Funds. Notes: credguild.com/cfa/level-1/notes/alternative-investments/high-water-mark/

Question 332 **Answer: A**

Selection bias arises when index providers assign funds to strategy categories inconsistently, or apply differing rules about which funds are included. Placing two funds with practically the same strategy in different categories is that kind of inconsistent assignment, so the category indexes no longer represent comparable peer groups.

Why the other options are wrong

- **B.** Dropping a failed or non-reporting fund so that its poor results disappear from the index is survivorship bias.
- **C.** Adding a newly included fund's earlier (and usually favorable) track record to the index history is backfill bias.

Key takeaway Survivorship = losers drop out; backfill = winners' history is added; selection = inconsistent classification or inclusion.

Reading 85: Hedge Funds. Notes: credguild.com/cfa/level-1/notes/alternative-investments/high-water-mark/

Question 333 **Answer: C**

A DLT network has three components: the digital ledger, the consensus mechanism and the network of participants. Consensus protocols determine how blocks are validated and chained together. The first chain uses proof of work (miners solve cryptographic problems and earn cryptocurrency), and the second uses proof of stake (validators stake collateral and earn a return on it).

Why the other options are wrong

- **A.** The network of participants determines who may perform network functions. Those functions are open to all users in a permissionless network and restricted in a permissioned one. The network of participants does not set the rule used to validate and add blocks.
- **B.** The digital ledger is the shared, identical record of transactions itself. Proof of work and proof of stake are ways of agreeing on how to update that ledger. They are not ledgers in their own right.

Key takeaway Proof of work and proof of stake are the two main consensus protocols. Miners belong to PoW; validators and staking belong to PoS.

Reading 86: Introduction to Digital Assets. Notes: credguild.com/cfa/level-1/notes/alternative-investments/introduction-to-digital-assets/

Question 334 **Answer: C**

An ICO may be less expensive to issue and may raise capital in less time than a regulated IPO. These are possible advantages, not guaranteed outcomes.

Why the other options are wrong

- **A.** An ICO may raise capital in less time than an IPO, so a longer capital-raising period is the opposite of the expected difference.
- **B.** Most ICOs attach no voting rights to the tokens sold, whereas common shares sold in an IPO normally carry votes. ICO buyers therefore typically get fewer voting rights.

Key takeaway An ICO may be less costly and faster than an IPO; it typically offers fewer investor protections and often no voting rights.

Reading 86: Introduction to Digital Assets. Notes: credguild.com/cfa/level-1/notes/alternative-investments/introduction-to-digital-assets/

Question 335 **Answer: B**

Cryptocurrency returns have historically shown low correlations with traditional asset class returns, so they may provide diversification benefits. The evidence is not conclusive, and correlations can rise in periods of extreme market stress, so the benefit is potential rather than assured.

Why the other options are wrong

- **A.** Returns have not closely tracked traditional asset classes; the low correlations are what make diversification possible. Digital assets have also produced much higher (and more volatile) returns than traditional assets.
- **C.** Digital assets are a new, highly speculative asset class with no clear legal protections, marked by high returns and very high volatility, so they are not a stable asset class.

Key takeaway Crypto offers potential diversification (low historical correlation) but with high volatility, and correlations may rise under stress.

Reading 86: Introduction to Digital Assets. Notes: credguild.com/cfa/level-1/notes/alternative-investments/introduction-to-digital-assets/

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Portfolio Construction

Questions 336–362 · 6 readings

87 Modern Portfolio Theory

Question 336

A pension trustee reviews close to a century of capital market history for the United States and other developed markets, comparing equity asset classes with fixed-income asset classes. Relative to fixed-income securities, equities have *most likely* shown:

A higher average annual returns and higher standard deviation of returns.

B lower average annual returns and higher standard deviation of returns.

C higher average annual returns and lower standard deviation of returns.

Question 337

Priya Nair and Tomas Ekberg share the same capital market expectations. Ekberg's risk–return indifference curves are flatter than Nair's. Compared with Nair, Ekberg is *most likely*:

A less risk averse and will choose an optimal portfolio with a higher expected return.

B more risk averse and will choose an optimal portfolio with a higher expected return.

C less risk averse and will choose an optimal portfolio with a lower expected return.

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Question 338

An analyst collects four years of returns for two stocks:

Annual returns on two stocks (%)

Year	Stock P	Stock Q
1	9	14
2	3	6
3	12	10
4	8	10

Using the sample formula, the covariance between the returns of Stock P and Stock Q (in percent squared) is *closest* to:

A

B

C

Question 339

Fund Lark has a standard deviation of returns of 7.4%, and Fund Wren has a standard deviation of returns of 5.2%. The two funds' returns are perfectly positively correlated. If short sales are not allowed, which allocation minimizes the standard deviation of a portfolio of the two funds?

A Lark 0%, Wren 100%.

B Lark 100%, Wren 0%.

C Lark 41%, Wren 59%.

Question 340

Investors can borrow and lend at the risk-free rate, which is below the expected return of every portfolio on the efficient frontier of risky assets, and all investors hold the same expectations about risky assets. A rational, risk-averse investor is *least likely* to choose which of the following as her entire portfolio?

A 100% in the risk-free asset.

B The global minimum-variance portfolio.

C 140% in the optimal risky portfolio, financed by borrowing at the risk-free rate.

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88 Systematic vs Unsystematic Risk

Question 341

An investor combines a risk-free asset with a portfolio of risky assets. Which statement about the new portfolio is *least accurate*?

A Its variance equals the weighted average of the variances of the risk-free asset and the risky portfolio.

B Its expected return is a weighted average of the risk-free rate and the risky portfolio's expected return.

C Its standard deviation equals the risky portfolio's weight multiplied by the risky portfolio's standard deviation.

Question 342

A fixed-income manager holds bonds from many different issuers. After this diversification, the risk from which of the following events is *most likely* to remain in the portfolio?

A A downgrade of one issuer after an accounting scandal.

B A recession that lowers revenues at most companies.

C A fire that shuts the main plant of one issuer.

Question 343

An analyst's CAPM-based expected return for Harwell Mining shares is 2.2 times the 10% return expected on the market portfolio. With a risk-free rate of 4%, the beta of Harwell Mining shares is *closest* to:

A 3.0.

B 2.2.

C 1.8.

Question 344

Denholm Freight shares have a beta of 1.15. The risk-free rate is 2.5% and the expected return on the market is 8.5%. According to the capital asset pricing model, the required return on Denholm shares is *closest* to:

A 12.3%.

B 9.8%.

C 9.4%.

Question 345

About 60% of Mariela Cortez's wealth is in shares of the software company she founded; the rest is in a broad mix of bonds and equity index funds. Which of the following risk-adjusted performance measures is *least appropriate* for evaluating her overall portfolio?

A Sharpe ratio.

B Jensen's alpha.

C M-squared.

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89 Defined Benefit vs Defined Contribution

Question 346

An investor who applies modern portfolio theory in the tradition of Markowitz is deciding whether to add a utility stock to her holdings. She should *most appropriately* judge the stock by:

A its expected return viewed on its own.

B how it would change her portfolio's overall risk and return.

C whether its intrinsic value exceeds its market price.

Question 347

An analyst using a top-down approach is evaluating the outlook for chemical company stocks. Which of the following factors should the analyst examine *first*?

A Return on equity for the chemicals industry.

B The outlook for fiscal policy.

C Competitive risks within the chemicals industry.

Question 348

Shares of the Norcastle Frontier Fund trade on a stock exchange and have been priced at a discount of about 14% to the fund's net asset value per share for several months. Norcastle is *most likely* a(n):

A closed-end fund.

B open-end fund.

C exchange-traded fund.

Question 349

A pooled investment fund buys all of the outstanding shares of a listed industrial manufacturer, removing it from the stock exchange. The fund installs a new executive team and restructures the company's operations, and four years later it sells the company back to the public through an initial public offering. The fund is *most likely* a(n):

A venture capital fund.

B event-driven fund.

C private equity fund.

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90 Basics of Portfolio Planning and Construction

Question 350

An adviser explains to a new client why they should agree on a written investment policy statement (IPS) before any money is invested. Which of the following is *least likely* to be one of the reasons she gives? A written IPS:

A names the individual securities the portfolio will buy first.

B makes the client spell out objectives, circumstances and constraints.

C helps keep return goals realistic given the client's risk tolerance.

Question 351

A client's IPS lists several investment objectives. Which one is a relative return objective?

A Achieve a nominal return of at least 7% per year.

B Keep to 5% the probability of losing more than 7% in any 12-month period.

C Outperform a global equity index by 1.5% per year.

Question 352

Holding everything else constant, which of the following changes would *most likely* reduce a client's ability to take investment risk?

A A sharp rise in near-term spending needs.

B A rise in the client's net worth.

C The purchase of additional insurance coverage.

Question 353

Which of the following is a characteristic of a well-specified set of asset classes for strategic asset allocation?

A Each class groups assets with widely differing risk and expected return.

B Taken together, the classes cover roughly the whole universe the IPS permits.

C Returns of each class are highly correlated with those of the other classes.

Question 354

Which of the following statements about integrating environmental, social and governance (ESG) considerations into portfolio construction is *most* accurate?

A Adding ESG constraints to the investment process will most likely reduce portfolio returns.

B Clients pursuing active ownership must vote their shares themselves instead of through the manager.

C A broad market index is unlikely to be an appropriate benchmark for a negatively screened portfolio.

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91 The Behavioral Biases of Individuals

Question 355

An adviser notes several tendencies in a client's behavior. Which one is *most likely* a cognitive error rather than an emotional bias? The client:

A takes on more risk rather than selling a stock at a loss.

B avoids buying stocks for fear of the regret she would feel if they fell.

C assumes a new company will behave like others it seems to resemble.

Question 356

Which of the following is classified as an information-processing bias?

A Regret aversion.

B Anchoring and adjustment.

C Status quo.

Question 357

Which of the following groups consists *only* of cognitive errors?

A Representativeness, framing, and overconfidence biases.

B Confirmation, anchoring and adjustment, and availability biases.

C Endowment, regret-aversion, and self-control biases.

Question 358

Studies find that many investors hold far fewer securities than traditional portfolio theory would recommend. Which behavioral bias *best* explains this under-diversification?

A Overconfidence.

B Anchoring.

C Fear of regret.

92 Value At Risk

Question 359

Which of the following is *most likely* one of the goals of an organization's risk management process?

A Identifying the risks the organization faces.

B Minimizing the risks the organization faces.

C Eliminating the risks the organization faces.

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Question 360

Which statement about how an organization sets its risk tolerance is *most accurate*?

A The organization's financial strength is one of the factors it should weigh.

B An organization with low risk tolerance should cut every risk it identifies.

C Only risks that come from outside the organization need to be considered.

Question 361

To protect its equity portfolio, the Ashcombe Teachers' Pension Fund buys over-the-counter put options from a single dealer. Over the next quarter, equity prices fall 25% and the puts move deep in the money. Which risk has *most likely* increased the most for the fund as a result of this move?

A Market risk on the equity portfolio.

B Credit risk on the put options.

C Operational risk in the fund's trading.

Question 362

Westbury College buys a flood insurance policy for its campus buildings. For each flood claim, the college pays the first $400,000 of damage itself, and the insurer pays the rest. Which description of this arrangement is *most accurate*?

A Losses of any size are transferred to the insurer, so the college bears no flood risk.

B The policy is a form of risk shifting, because it changes the distribution of the college's outcomes.

C The first $400,000 of each loss is self-insured, and the part above it is transferred.

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PORTFOLIO CONSTRUCTION

Answers and explanations

Answer key: 336. A · 337. A · 338. A · 339. A · 340. B · 341. A · 342. B · 343. A · 344. C · 345. B · 346. B · 347. B · 348. A · 349. C · 350. A · 351. C · 352. A · 353. B · 354. C · 355. C · 356. B · 357. B · 358. A · 359. A · 360. A · 361. B · 362. C

Question 336 **Answer: A**

Long-run data show a positive risk–return tradeoff across asset classes. Both small-cap and large-cap stocks have earned higher average annual returns than long-term corporate and government bonds, and they have done so with a larger standard deviation of returns. Results in other developed markets are similar.

Why the other options are wrong

- **B.** Equities have earned higher average returns than bonds over long periods. The extra return is the reward for their extra volatility.
- **C.** Equities have been more volatile than bonds; higher return with lower risk would contradict the risk–return tradeoff.

Key takeaway Over long periods: more average return has come with more standard deviation (small caps > large caps > bonds > T-bills).

Reading 87: Portfolio Risk and Return: Part I. Notes: credguild.com/cfa/level-1/notes/portfolio-construction/modern-portfolio-theory/

Question 337 **Answer: A**

Flatter indifference curves mean Ekberg requires less extra expected return for each additional unit of risk, so he is less risk averse than Nair. Facing the same set of portfolios, his flatter curve is tangent further out along the frontier (or CAL), so his optimal portfolio has more risk and a higher expected return.

Why the other options are wrong

- **B.** Flatter curves indicate lower risk aversion; a more risk-averse investor has steeper curves.
- **C.** The degree of risk aversion is right, but a less risk-averse investor's tangency point lies further out, at a higher expected return.

Key takeaway Flatter curves mean less risk aversion and an optimal portfolio with more risk and higher expected return.

Reading 87: Portfolio Risk and Return: Part I. Notes: credguild.com/cfa/level-1/notes/portfolio-construction/modern-portfolio-theory/

Question 338 **Answer: A**

Sample covariance is the sum of the products of the two stocks' deviations from their own means, divided by $T - 1$. The products sum to 24 over four observations, so the covariance is $24/3 = 8$.

Means: $\bar{R}_P = (9 + 3 + 12 + 8)/4 = 8\%$; $\bar{R}_Q = (14 + 6 + 10 + 10)/4 = 10\%$

Year	$R_P - \bar{R}_P$	$R_Q - \bar{R}_Q$	Product
1	1	4	4

Year	$R_P - \bar{R}_P$	$R_Q - \bar{R}_Q$	Product
2	−5	−4	20
3	4	0	0
4	0	0	0

$$\text{Cov}_{P,Q} = \frac{4 + 20 + 0 + 0}{4 - 1} = \frac{24}{3} = 8$$

Why the other options are wrong

- **B.** 14 is the sample variance of Stock P $(1 + 25 + 16 + 0)/3$. The question asks for the covariance between P and Q.
- **C.** 24 is the sum of the cross-products before dividing by $T - 1 = 3$.

Key takeaway Covariance: multiply paired deviations, sum, divide by $T - 1$. Don't confuse it with one stock's variance.

Reading 87: Portfolio Risk and Return: Part I. Notes: credguild.com/cfa/level-1/notes/portfolio-construction/modern-portfolio-theory/

Question 339 **Answer: A**

With a correlation of +1 there is no diversification benefit: portfolio standard deviation is just the weighted average of the two funds' standard deviations. The weighted average is lowest when everything is in the fund with the lower standard deviation, Wren (5.2%).

With $\rho = +1$: $\sigma_p = w_L(7.4\%) + w_W(5.2\%)$, a weighted average that is minimized at $w_W = 100\%$, giving $\sigma_p = 5.2\%$.

Why the other options are wrong

- **B.** Putting everything in Lark gives the highest possible portfolio risk (7.4%), because Lark is the more volatile fund.
- **C.** These weights $(w_{Lark} = 5.2/12.6 = 41\%)$ would create a zero-risk portfolio only if the correlation were −1. With $\rho = +1$, this mix has $\sigma_p = 0.41(7.4\%) + 0.59(5.2\%) = 6.1\%$, more than Wren alone.

Key takeaway With perfect positive correlation, hold only the lower-σ asset to minimize risk.

Reading 87: Portfolio Risk and Return: Part I. Notes: credguild.com/cfa/level-1/notes/portfolio-construction/modern-portfolio-theory/

Question 340 **Answer: B**

By the two-fund separation theorem, every investor's optimal portfolio is a combination of the risk-free asset and the optimal risky portfolio, so it lies on the capital allocation line (CAL). Because the risk-free rate is below the frontier's returns, the CAL touches the concave efficient frontier only at the optimal risky portfolio, which lies above the global minimum-variance portfolio; every other risky portfolio, including the global minimum-variance portfolio, plots below the CAL. A mix of the risk-free asset and the optimal risky portfolio with the same standard deviation offers a higher expected return, so the global minimum-variance portfolio is not an optimal choice.

Why the other options are wrong

- **A.** A very risk-averse investor may rationally hold only the risk-free asset, the starting point of the capital allocation line.

- **C.** A less risk-averse investor may rationally borrow to hold more than 100% of her equity in the optimal risky portfolio, a point on the line beyond the risky portfolio.

Key takeaway With a risk-free asset, optimal portfolios lie on the CAL through the optimal risky portfolio; the global minimum-variance portfolio lies below the CAL and is dominated.

Reading 87: Portfolio Risk and Return: Part I. Notes: credguild.com/cfa/level-1/notes/portfolio-construction/modern-portfolio-theory/

Question 341 **Answer: A**

The variance of the new portfolio is $w^2\sigma_P^2$, not $w\sigma_P^2 + (1-w)(0)$. The standard deviation, rather than the variance, is the weighted average of the two assets' standard deviations (zero for the risk-free asset and σ_P for the risky portfolio).

Example with $w = 0.5$, $\sigma_P = 20\%$: variance $= 0.5^2 \times 0.04 = 0.01$ (standard deviation 10%), whereas a weighted average of variances would give $0.5 \times 0.04 = 0.02$ (standard deviation 14.1%).

Why the other options are wrong

- **B.** Accurate: $E(R_C) = wE(R_P) + (1-w)R_f$.
- **C.** Accurate: because the risk-free asset has zero standard deviation and zero covariance with the risky portfolio, $\sigma_C = w\,\sigma_P$.

Key takeaway Standard deviation is linear in the risky weight; variance is not.

Reading 88: Portfolio Risk and Return: Part II. Notes: credguild.com/cfa/level-1/notes/portfolio-construction/systematic-vs-unsystematic-risk/

Question 342 **Answer: B**

A recession is an economy-wide event that affects nearly all issuers at once, so its risk is systematic (market) risk and cannot be diversified away. Holding bonds of many issuers removes only unsystematic risk, which comes from events specific to one issuer.

Why the other options are wrong

- **A.** A downgrade after one issuer's accounting scandal is specific to that issuer. It is unsystematic risk, and its effect on a portfolio of many issuers' bonds is diversified away.
- **C.** A fire at one issuer's plant is a firm-specific event. Holding bonds of many issuers diversifies this unsystematic risk away.

Key takeaway Ask: does the risk come from one issuer or from the whole economy? Issuer-specific = unsystematic, diversified away; economy-wide = systematic, remains.

Reading 88: Portfolio Risk and Return: Part II. Notes: credguild.com/cfa/level-1/notes/portfolio-construction/systematic-vs-unsystematic-risk/

Question 343 **Answer: A**

The CAPM links a stock's expected excess return to the market's expected excess return through beta, so beta can be backed out once both excess returns are known. Harwell's expected return is $2.2 \times 10\% = 22\%$.

$$E(R_i) = R_f + \beta_i[E(R_m) - R_f]$$

$$22\% = 4\% + \beta(10\% - 4\%) \;\Rightarrow\; 18\% = 6\%\,\beta \;\Rightarrow\; \beta = 3.0$$

Why the other options are wrong

- **B.** 2.2 is the multiple of the market's return. That multiple relates total returns, whereas beta relates excess returns over the risk-free rate.
- **C.** 1.8 divides the stock's excess return (18%) by the market's total return (10%) instead of by the market risk premium (6%).

Key takeaway To back out beta: $\beta = [E(R_i) - R_f]/[E(R_m) - R_f]$. Subtract R_f from both returns.

Reading 88: Portfolio Risk and Return: Part II. Notes: credguild.com/cfa/level-1/notes/portfolio-construction/systematic-vs-unsystematic-risk/

Question 344 **Answer: C**

The CAPM adds a beta-adjusted market risk premium to the risk-free rate. The market risk premium is the expected market return minus the risk-free rate, 6.0%.

$$E(R_i) = R_f + \beta_i[E(R_m) - R_f] = 2.5\% + 1.15(8.5\% - 2.5\%) = 2.5\% + 6.9\% = 9.4\%$$

Why the other options are wrong

- **A.** 12.3% multiplies beta by the full market return instead of the market risk premium: $2.5\% + 1.15 \times 8.5\% = 12.3\%$.
- **B.** 9.8% is simply beta times the market return ($1.15 \times 8.5\%$), ignoring the risk-free rate and the premium structure of the CAPM.

Key takeaway CAPM: $E(R_i) = R_f + \beta_i[E(R_m) - R_f]$. Subtract R_f from the market return before multiplying by beta.

Reading 88: Portfolio Risk and Return: Part II. Notes: credguild.com/cfa/level-1/notes/portfolio-construction/systematic-vs-unsystematic-risk/

Question 345 **Answer: B**

Jensen's alpha adjusts for systematic (beta) risk only, which suits a well-diversified portfolio. Cortez's portfolio is dominated by one stock and carries a large amount of unsystematic risk, so a measure based on total risk is needed.

Why the other options are wrong

- **A.** The Sharpe ratio uses standard deviation (total risk), so it captures her large firm-specific risk and is appropriate for a concentrated portfolio.
- **C.** M-squared is derived from the Sharpe ratio and also uses total risk, so it remains suitable when the portfolio is concentrated in one holding.

Key takeaway Use total-risk measures (Sharpe, M²) for a concentrated portfolio and beta-based measures (Treynor, Jensen's alpha) for a well-diversified one.

Reading 88: Portfolio Risk and Return: Part II. Notes: credguild.com/cfa/level-1/notes/portfolio-construction/systematic-vs-unsystematic-risk/

credguild.com

Question 346 **Answer: B**

Markowitz's framework, the basis of modern portfolio theory, evaluates an investment by its effect on the risk and expected return of the portfolio as a whole. Because risk that can be diversified away is not rewarded, how the asset interacts with existing holdings matters more than its standalone characteristics.

Why the other options are wrong

- **A.** Looking only at expected return ignores risk and ignores how the stock combines with the rest of the portfolio.
- **C.** Comparing intrinsic value with market price is standalone security valuation (bottom-up analysis). The Markowitz framework calls for a portfolio-level evaluation.

Key takeaway Modern portfolio theory: no asset is judged in isolation.

Reading 89: Portfolio Management: An Overview. Notes: credguild.com/cfa/level-1/notes/portfolio-construction/defined-benefit-vs-defined-contribution/

Question 347 **Answer: B**

A top-down approach moves from the broad economy to industries and only then to individual companies. Fiscal policy (government spending and taxation) is a macroeconomic influence, so it is assessed before any industry-level factor.

Why the other options are wrong

- **A.** Industry return on equity is an industry-level factor. In a top-down sequence it is analyzed after the macroeconomic environment.
- **C.** Industry risks are also assessed at the industry stage, after the macroeconomic analysis.

Key takeaway Top-down order: the economy first (e.g., GDP growth, inflation, interest rates, fiscal and monetary policy), then the industry, then the company.

Reading 89: Portfolio Management: An Overview. Notes: credguild.com/cfa/level-1/notes/portfolio-construction/defined-benefit-vs-defined-contribution/

Question 348 **Answer: A**

Closed-end fund shares trade in the market at prices set by supply and demand for the shares, so they can sit at a large and persistent premium or discount to NAV.

Why the other options are wrong

- **B.** Open-end fund shares are bought from and redeemed by the fund at NAV, so they cannot trade at a discount to NAV (and they do not trade on an exchange).
- **C.** An ETF's special redemption provisions let arbitrageurs profit from any gap between price and NAV, which keeps ETF prices very close to NAV; a 14% gap lasting months is inconsistent with an ETF.

Key takeaway A large, lasting premium or discount to NAV points to a closed-end fund.

Reading 89: Portfolio Management: An Overview. Notes: credguild.com/cfa/level-1/notes/portfolio-construction/defined-benefit-vs-defined-contribution/

credguild.com

Question 349 **Answer: C**

A private equity (buyout) fund acquires entire companies, often public ones that it takes private, restructures them to increase their value and cash flow, and exits after a few years, for example through an IPO.

Why the other options are wrong

- **A.** Venture capital funds invest in start-up companies. An established listed manufacturer is not a venture capital target.
- **B.** An event-driven fund is a hedge fund strategy that trades around corporate events such as mergers and acquisitions; it does not buy and run whole companies.

Key takeaway Take private + restructure + exit via IPO = private equity (buyout) fund.

Reading 89: Portfolio Management: An Overview. Notes: credguild.com/cfa/level-1/notes/portfolio-construction/defined-benefit-vs-defined-contribution/

Question 350 **Answer: A**

An IPS works at the level of objectives, constraints, strategy and benchmark. It does not go down to the choice of particular securities, which is a later, implementation decision within the policy the IPS sets.

Why the other options are wrong

- **B.** Forcing the client to articulate needs, circumstances and constraints is a central purpose of a written IPS; it imposes discipline on both parties.
- **C.** The IPS makes the client reconcile return expectations with risk tolerance, so it does help keep goals realistic and makes the risks of investing explicit.

Key takeaway The IPS is the starting point of the portfolio management process. It sets policy; security selection comes later.

Reading 90: Basics of Portfolio Planning and Construction. Notes: credguild.com/cfa/level-1/notes/portfolio-construction/basics-of-portfolio-planning-and-construction/

Question 351 **Answer: C**

A return objective is relative when it is expressed against a benchmark, such as an index or a portfolio. Beating a global equity index by a stated margin is therefore a relative return objective.

Why the other options are wrong

- **A.** A specific numerical outcome (7% nominal) is an absolute return objective.
- **B.** A probability statement about losses is a risk objective. Because it refers to a loss threshold rather than a benchmark it is an absolute risk objective. Stating something in probability terms does not make it relative.

Key takeaway Relative = measured against a benchmark. Numerical targets are absolute; probability-of-loss statements are risk objectives (absolute unless tied to a benchmark).

Reading 90: Basics of Portfolio Planning and Construction. Notes: credguild.com/cfa/level-1/notes/portfolio-construction/basics-of-portfolio-planning-and-construction/

credguild.com

Question 352 **Answer: A**

Ability (capacity) to bear risk depends on financial circumstances. Large near-term spending needs are a fixed obligation the portfolio must reliably fund, so the client can afford less uncertainty and the ability to take risk falls.

Why the other options are wrong

- **B.** Greater wealth relative to needs and liabilities increases the ability to take risk.
- **C.** More insurance protects against unexpected events and so increases the ability to take investment risk.

Key takeaway Wealth, insurance, a long horizon and a secure job raise the ability to bear risk; large spending needs and dependents lower it.

Reading 90: Basics of Portfolio Planning and Construction. Notes: credguild.com/cfa/level-1/notes/portfolio-construction/basics-of-portfolio-planning-and-construction/

Question 353 **Answer: B**

Properly specified asset classes, taken as a group, should approximate the universe of permissible investments set out in the IPS.

Why the other options are wrong

- **A.** Assets within a class should have similar risk and return characteristics, with high correlation within the class.
- **C.** Correlations between asset classes should be low, so that allocating across classes provides diversification.

Key takeaway Good asset classes: homogeneous inside, low correlation across, and together they span the permitted universe.

Reading 90: Basics of Portfolio Planning and Construction. Notes: credguild.com/cfa/level-1/notes/portfolio-construction/basics-of-portfolio-planning-and-construction/

Question 354 **Answer: C**

When negative screening removes companies or industries from the investment universe, a broad market index no longer reflects what the manager could hold. A more appropriate benchmark is an index that also excludes the companies or industries such investors commonly avoid.

Why the other options are wrong

- **A.** The effect of ESG constraints on returns is uncertain: a narrower universe and research costs may reduce returns, but good governance and avoiding ESG-related risks may increase them.
- **B.** Investors using engagement/active ownership may vote their shares themselves or direct the manager to vote according to specified ESG factors; either is possible, and the point is to clarify which.

Key takeaway A negatively screened portfolio is better judged against a benchmark that excludes the same companies; ESG effect on returns is uncertain; active ownership voting can be done by the client or delegated.

Reading 90: Basics of Portfolio Planning and Construction. Notes: credguild.com/cfa/level-1/notes/portfolio-construction/basics-of-portfolio-planning-and-construction/

credguild.com

Question 355 **Answer: C**

Classifying something by a few features and assuming it will share the characteristics of that category is representativeness bias, a belief perseverance bias and therefore a cognitive error.

Why the other options are wrong

- **A.** Taking extra risk to avoid realizing a loss is loss-aversion bias, an emotional bias.
- **B.** Inaction driven by fear of regretting a wrong decision is regret-aversion bias, an emotional bias.

Key takeaway Representativeness (categorizing) is cognitive; loss aversion and regret aversion are emotional.

Reading 91: The Behavioral Biases of Individuals. Notes: credguild.com/cfa/level-1/notes/portfolio-construction/the-behavioral-biases-of-individuals/

Question 356 **Answer: B**

Anchoring and adjustment is a cognitive error in the information-processing group: an initial number is used as an anchor and adjusted too little as new information arrives.

Why the other options are wrong

- **A.** Regret aversion is an emotional bias.
- **C.** Status quo bias is an emotional bias.

Key takeaway Information-processing biases: anchoring and adjustment, mental accounting, framing, availability. By contrast, loss aversion, status quo and regret aversion are emotional biases.

Reading 91: The Behavioral Biases of Individuals. Notes: credguild.com/cfa/level-1/notes/portfolio-construction/the-behavioral-biases-of-individuals/

Question 357 **Answer: B**

Confirmation bias is a belief perseverance bias, and anchoring and adjustment and availability are information-processing biases. All three are therefore cognitive errors.

Why the other options are wrong

- **A.** Representativeness and framing are cognitive errors, but overconfidence is classified as an emotional bias.
- **C.** Endowment, regret-aversion and self-control biases are all emotional biases.

Key takeaway Cognitive = belief perseverance (conservatism, confirmation, representativeness, illusion of control, hindsight) + information processing (anchoring and adjustment, mental accounting, framing, availability). The six emotional biases are loss aversion, overconfidence, self-control, status quo, endowment and regret aversion.

Reading 91: The Behavioral Biases of Individuals. Notes: credguild.com/cfa/level-1/notes/portfolio-construction/the-behavioral-biases-of-individuals/

Question 358 **Answer: A**

Overconfidence leads investors to overestimate their knowledge and underestimate risk, which results in overtrading and insufficient diversification.

Why the other options are wrong

- **B.** Anchoring may cause investors to treat recent highs as rational prices even as prices fall; it is not the usual explanation for under-diversification.
- **C.** Fear of regret (of missing gains) may keep skeptical investors in an overvalued market; it does not explain holding too few securities.

Key takeaway Under-diversification, overtrading and underestimating risk are hallmarks of overconfidence.

Reading 91: The Behavioral Biases of Individuals. Notes: credguild.com/cfa/level-1/notes/portfolio-construction/the-behavioral-biases-of-individuals/

Question 359 **Answer: A**

The risk management process identifies the organization's risk tolerance, identifies and measures the risks it faces, and then modifies and monitors those risks. Its aim is the optimal bundle of risks rather than the smallest possible amount of risk.

Why the other options are wrong

- **B.** Minimizing risk is not the goal. Returns above the risk-free rate require bearing risk, and an organization may deliberately increase risks it manages well.
- **C.** Eliminating all risk would also eliminate the returns that come from bearing it; risk management keeps the risks that fit the organization's tolerance and goals.

Key takeaway Risk management chooses which risks to bear; it does not try to avoid all risk.

Reading 92: Introduction to Risk Management. Notes: credguild.com/cfa/level-1/notes/portfolio-construction/value-at-risk/

Question 360 **Answer: A**

Financial strength matters since it indicates how large a loss the organization can absorb. Other factors are its expertise in its lines of business, its skill at responding to negative outside events and its regulatory environment.

Why the other options are wrong

- **B.** Even with low risk tolerance, an organization may choose to keep some risks that fit its objectives; risk management does not aim to reduce every risk.
- **C.** Risk tolerance must reflect risks arising inside the organization as well as those arising outside it.

Key takeaway Risk tolerance depends on expertise, response skill, regulation and financial strength, and covers internal and external risks.

Reading 92: Introduction to Risk Management. Notes: credguild.com/cfa/level-1/notes/portfolio-construction/value-at-risk/

Question 361 **Answer: B**

Risks interact. The puts reduced the fund's market risk, but after the fall the dealer owes the fund a large payment on them. If the dealer fails to pay, the fund loses the protection it bought just when it needs it, so its credit (counterparty) risk has grown with the value of the puts.

Why the other options are wrong

- **A.** The puts were bought to offset losses on the equities, and their gains now cushion the fall. The decline has moved exposure from the market to the dealer.

- **C.** Operational risk comes from human error, faulty processes, poor security or business interruptions. Nothing in the market move changes the fund's internal processes.

Key takeaway Hedging market risk with OTC derivatives creates counterparty credit risk, and that credit risk grows as the hedge gains value.

Reading 92: Introduction to Risk Management. Notes: credguild.com/cfa/level-1/notes/portfolio-construction/value-at-risk/

Question 362 **Answer: C**

Insurance is a form of risk transfer: the insurer takes on the losses it covers in return for premiums. Because the college pays the first $400,000 of every claim, it bears that layer of each loss itself, which is self-insurance. The arrangement therefore combines risk transfer with self-insurance.

Why the other options are wrong

- **A.** The deductible means the college still bears every loss up to $400,000, so it keeps part of its flood risk.
- **B.** Risk shifting changes the distribution of outcomes mainly through derivative contracts, such as forwards, swaps or options. Buying insurance is classified as risk transfer.

Key takeaway Insurance transfers risk; a deductible is a layer of self-insurance; derivatives used to alter outcomes are risk shifting.

Reading 92: Introduction to Risk Management. Notes: credguild.com/cfa/level-1/notes/portfolio-construction/value-at-risk/

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CFA® PROGRAM LEVEL I · FREE PRACTICE QUESTIONS

Ethical and Professional Standards

Questions 363–398 · 10 readings

93 Ethics and Trust in the Investment Profession

Question 363

Ethics is *best* described as:

A a written set of rules adopted by a firm.

B commonly shared beliefs about good and bad behavior.

C one individual's belief about proper conduct.

Question 364

Which of the following *best* distinguishes the members of a profession from people working in an ordinary occupation? Members of a profession:

A earn higher compensation for their services.

B regard their work as a vocation or calling.

C agree to comply with a common code of ethics.

Question 365

Anika Dorsey, a junior trader, goes along with her desk's habit of delaying the reporting of losing trades. She does so because her supervisor and colleagues expect it and her bonus depends on the desk's reported profits. Lapses like Dorsey's are *most likely* to be explained by:

A situational influences.

B a lack of technical training.

C her personal character traits.

Question 366

Which of the following lists the steps of the ethical decision-making framework presented in the Level I CFA curriculum?

A Relevance; faithful representation; comparability; verifiability; timeliness; understandability.

B Define the objective; collect and analyze data; report findings; update the analysis.

C Identify facts and duties; consider influences and alternatives; decide and act; reflect.

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94 Code of Ethics

Question 367

Moses Adeyemi, CFA, is told that the Professional Conduct staff have concluded that he violated the Code and Standards, and they propose a disciplinary sanction. If Adeyemi rejects the proposed sanction:

A he is automatically suspended from membership.

B the matter is referred to a disciplinary review panel for a hearing.

C the matter is closed unless a new inquiry is opened.

Question 368

Sven Adler, a CFA candidate, is making flash cards. He marks each duty "Code" if it is one of the six components of the Code of Ethics and "Standard" if it appears only in the Standards of Professional Conduct. Which of the following duties should Adler mark "Standard"? Members and candidates must:

A not engage in conduct that compromises the integrity or reputation of CFA Institute, the CFA designation, or its programs.

B place the integrity of the investment profession and the interests of clients above their own personal interests.

C promote the integrity and viability of the global capital markets for the ultimate benefit of society.

Question 369

Elena Varga, CFA, is a relationship manager at Northgate Wealth Partners. A prospective client asks whether Northgate can manage a portfolio of Indian equities. Varga has heard that her colleague Tomas Reyes might have managed Indian equities at a previous employer, and without checking she tells the prospect that Northgate has that expertise. Two days later she learns that Reyes has never managed Indian equities. She does not contact the prospect, who later opens an account with Northgate. Varga has:

A violated the Code and Standards both when she made the unverified claim and when she failed to correct it.

B violated the Code and Standards only by failing to correct her statement once she learned it was false.

C not violated the Code and Standards, because she did not intend to mislead the prospect.

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95 Knowledge of the Law

Question 370

After 18 years with a large Toronto asset manager, Lionel Batiste, CFA, sets up his own advisory firm in Port Aurelia, a jurisdiction whose securities rules are far weaker than both Canadian law and the CFA Institute Standards of Professional Conduct. Most of his clients are Canadian residents who moved their accounts to the new firm, and Canadian law continues to apply to his dealings with them. Batiste finds that Port Aurelia rules would let him skip several client disclosures that he always had to make in Canada. According to the Code and Standards, Batiste must follow:

A Port Aurelia rules, provided he tells his Canadian clients where they differ from Canadian law.

B the Code and Standards in every case, because as a charterholder he answers only to them.

C whichever is stricter of the Code and Standards and Canadian law.

Question 371

Irene Vautrin, CFA, has managed domestic large-cap equity portfolios for ten years. Her firm asks her to take over its frontier-market bond fund next month, an asset class she has never analyzed. Which response is *most consistent* with Standard I(E) Competence?

A Take responsibility for building the knowledge and skills the new role requires.

B Accept the role and rely on the firm to provide any training it considers necessary.

C Decline the role, because the Standard does not allow members to change asset classes.

Question 372

Hana Petrov runs an independent advisory practice with 140 individual clients. When she takes on a new client, she collects the information she needs to make recommendations, such as the client's tax situation, income, spending needs, and willingness to take risk. With respect to this client information, the Standards require Petrov to:

A update it only when she makes a material change to the client's portfolio.

B reassess and update it on a regular basis.

C update it only after learning of a material change in the client's circumstances.

Question 373

While looking for a file on her firm's shared drive, Nadia Petrova, an equity analyst, opens a colleague's half-finished draft notes on a retailer that Petrova covers. After reading them, and without doing any further work, Petrova immediately changes her own recommendation on the retailer from sell to buy. Which Standard has Petrova violated?

A Standard V(A) Diligence and Reasonable Basis.

B Standard I(B) Independence and Objectivity.

C Standard III(A) Loyalty, Prudence, and Care.

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Question 374

Ewa Kowalczyk, CFA, marketing director at Glenhaven Advisors, publishes the following item in the firm's client newsletter:

> "Three of our portfolio managers have been awarded the right to use the CFA designation, and five of our associates are Level II candidates in the CFA Program. Their achievement reflects their dedication to the investment profession and their commitment to the highest ethical standards."

All five associates are registered to sit the next Level II exam. With regard to the statements in the item:

A Kowalczyk has violated the Code and Standards by implying superior performance results.

B Kowalczyk has violated the Code and Standards through the way she refers to the managers' CFA designation.

C all of the statements are consistent with the Code and Standards.

96 Material Nonpublic Information

Question 375

Adaeze Okafor, CFA, is a broker. The chief executive of Stellan Pharmaceuticals, a listed company, telephones her and asks her to buy Stellan shares for trust accounts he set up for his grandchildren, remarking that the purchase will look very smart "once the merger we're negotiating is announced." Okafor searches news services and finds no public mention of a merger. Okafor should:

A execute the order, because Standard III(B) Fair Dealing requires her to treat all client orders alike.

B execute the order, because the shares are for the grandchildren's accounts rather than the executive's own.

C decline the order, because executing it would mean acting on material nonpublic information.

Question 376

Colette Brenner is convinced that Lunaris Robotics is overvalued, and three weeks ago she sold short 60,000 Lunaris shares. This week she has been posting false, damaging claims about Lunaris's management on several investment message boards. Under Standard II(B) Market Manipulation, Brenner's conduct is:

A a violation through the false claims, but not through her trade.

B a violation through both her trade and the false claims.

C a violation through her trade, but not through the false claims.

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Question 377

Tobias Engel, an investment analyst, has gathered several items of nonpublic information through his contacts at medical device makers. None of the items is material on its own, but by putting them together he correctly concludes that one of the companies will report much higher earnings than expected next year. According to the CFA Institute Standards of Professional Conduct, Engel:

A cannot legally trade or make recommendations based on this conclusion.

B may use the conclusion in his investment recommendations and decisions.

C may use the conclusion only after a compliance officer has approved it.

97 Duties to Clients

Question 378

Lucia Ferraz, CFA, manages the Tessaro Emerging Markets Equity Fund and routes the fund's trades to Blakemore Securities, which gives her soft dollar credits for buying research. In her own personal account, Ferraz holds several high-yield corporate bonds; the fund holds no bonds. She spends some of the soft dollars on reports about emerging-market companies and some on a credit newsletter that covers the high-yield bonds she owns personally. Her use of the soft dollars is:

A a violation for both the equity research and the credit newsletter.

B not a violation of the Code and Standards.

C a violation for the credit newsletter but not for the equity research.

Question 379

Dmitri Olsen, CFA, finishes a research report with a buy recommendation on Harrow Grain Logistics. Some weeks earlier he asked all of his clients for their e-mail addresses. At 11 a.m. he e-mails the report to the clients who supplied an address, and that afternoon he posts printed copies to all clients, who receive them two to four days later. Olsen has:

A violated the Standards because only some clients received the e-mail.

B not violated the Standards, because he disseminated the report fairly.

C violated the Standards because the e-mail went out before the printed report arrived.

Question 380

Gloria Ansel, a retired bus driver who lives on the income from a small annuity, asks Viktor Lindqvist, CFA, to buy 8,000 shares of Quarrystone Genetics, a newly formed biotechnology start-up. The purchase would materially change the risk of her portfolio, and Lindqvist believes it is unsuitable given her investment policy statement. Consistent with the Standards, Lindqvist should *most appropriately*:

A refuse the order because the investment is unsuitable for her.

B follow his firm's procedure for obtaining her approval of an unsolicited trade.

C talk with her about whether she wants to revise her investment policy statement.

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Question 381

Carden Asset Management launches a new emerging-market debt fund. It correctly calculates the returns over the past four years of each bond now in the fund and, using the fund's current weights, arrives at an average annual return of 14%. Carden's launch advertising describes the fund as having produced 14% a year historically. Under the Standards, Carden's advertising is:

A in compliance with the Standards.

B a violation, because the advertisement implies that the firm earned this return.

C a violation, because the Standards prohibit advertising historical returns on high-risk assets.

Question 382

Tobias Ferrante, CFA, has gathered evidence suggesting that one of his clients is likely laundering money. According to Standard III(E) Preservation of Confidentiality, Ferrante is prohibited from which of the following actions?

A Report his conclusion to CFA Institute.

B Report his conclusion to the appropriate government authorities.

C Neither; both actions are permissible.

98 Duties to Employers

Question 383

Oscar Brennan, CFA, is a credit analyst at Halcyon Bank. A friend who runs an independent investment advisory practice asks Brennan to help review her clients' portfolios on evenings and weekends, for a fee. Under the Standard concerning loyalty, under what conditions may Brennan accept?

A Brennan must tell Halcyon the terms of the arrangement and obtain Halcyon's consent.

B Brennan must disclose the extra pay to Halcyon but does not need Halcyon's consent.

C Under none, because the arrangement would put Brennan in competition with Halcyon.

Question 384

Amelia Ross, CFA, has just joined Harrowby Trust as a trust officer. She learns that Harrowby routes all its securities trades through her cousin, a registered broker, whose commissions match the lowest rate available from other brokers. Her cousin tells her that if Harrowby keeps sending him its business, he will give her a large discount on all of her personal trades. Ross:

A must refuse the arrangement.

B must obtain written consent from all parties involved before accepting the arrangement.

C need not inform her employer, because Harrowby is paying the lowest available commissions.

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Question 385

Arjun Mehta, CFA, leads a team of credit analysts at a regional bank; none of the analysts is a CFA charterholder or candidate. Mehta has several times urged the bank's senior partners to adopt a compliance system to make sure that applicable laws and regulations are followed, but they have rejected each proposal. Mehta should *most appropriately*:

A take no further action, because by urging the bank to adopt a compliance system he has met his obligations.

B decline in writing to accept supervisory responsibility until an adequate compliance system is adopted.

C report the bank's inadequate system in a written complaint to the CFA Institute Professional Conduct Program.

99 Investment Analysis Recommendations and Actions

Question 386

Marisol Vega, CFA, runs a one-person advisory practice. She frequently bases client recommendations on research bought from several outside providers. The Code and Standards *most likely* require Vega to:

A carry out her own research instead of depending on outside providers.

B name each outside provider whose research supports a recommendation.

C make reasonable efforts to confirm that the outside research has a sound basis.

Question 387

Ines Moreau, CFA, is writing a report on Aldercrest Power. Over the past year, four of the six utilities in its region cut their dividends roughly in half to fund capital spending, and Moreau reasons that Aldercrest will face similar pressure. Her report states: "Aldercrest will reduce its dividend from $3.20 to $1.60 a share by the third quarter to pay for its capital program. Investors who buy at today's price of about $64 could earn a total return above 18%." With respect to Standard V(B) Communication with Clients and Prospective Clients, Moreau:

A violated the Standard by promising a specific investment return.

B violated the Standard by failing to distinguish opinion from fact.

C did not violate the Standard.

Question 388

Dominic Ashe, CFA, recently left a large bank's research department to open his own equity research boutique. All of the files supporting his earlier reports stayed with the bank. Relying on his detailed memory of those files, Ashe rewrites several of his former reports, publishes them under his new firm's name and signs up several clients as a result. Ashe has not reconstructed any supporting records. Ashe is *most likely*:

A not in violation of any Standard.

B in violation of Standard V(A) Diligence and Reasonable Basis.

C in violation of Standard V(C) Record Retention.

100 Conflicts of Interest

Question 389

Rosalind Mercer, CFA, is an analyst at the investment bank Carrow & Pike. Her manager asks her to initiate coverage of Summit Ridge Ales. Carrow & Pike's corporate finance group has advised Summit Ridge on every acquisition it has made over the last nine years, and two of Carrow & Pike's senior partners serve as Summit Ridge directors. According to the Standards of Professional Conduct, may Mercer write the report?

A Yes, if she keeps her analysis independent and objective.

B No, because the conflicts are too significant.

C Yes, if she discloses the board seats and the advisory work.

Question 390

A brokerage firm is adding blackout periods to its personal-trading procedures for employees involved in investment decision-making. Under the recommended procedures for Standard VI(B) Priority of Transactions, how strict the blackout requirement should be depends *most* on:

A the size of the firm and the type of security.

B each employee's seniority and length of service.

C the number of clients and the average account size.

Question 391

Priya Natarajan is an estate-planning attorney. Colin Ashby, CFA, a wealth manager, regularly sends his clients to her for estate work. In exchange, Natarajan prepares the wills and trust documents for Ashby's own family without charging him. Natarajan has just been awarded the CFA charter and become a member of CFA Institute. Under the Standards, Natarajan must:

A tell prospective clients referred by Ashby about the free legal work and its estimated value.

B tell prospective clients referred by Ashby about the free legal work, but not its value.

C stop doing legal work for Ashby's family without charge.

101 Responsibilities as a CFA Institute Member

Question 392

Tariq Haddad, a Level III candidate, takes part in an online forum where candidates discuss curriculum readings in depth during the study season. Four days after his testing window closes, frustrated by difficult questions, he posts several exam questions he remembers and asks other members how they answered them and why. Several other candidates respond by posting questions they remember. Haddad and the other candidates are *most likely*:

A not in violation, because the posts appeared only after the testing window had closed.

B in violation, because they disclosed confidential information about the exam.

C in violation, because they discussed curriculum topics in a public forum ahead of the exam.

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Question 393

A regional broker has just hired Mei Tanaka and Callum Reid. Each cleared both Level I and Level II at the first try, and neither business card refers to the CFA Program. Tanaka's marketing materials accurately describe the requirements of the CFA Program and add: "Because I cleared the first two levels at the first try, my clients can expect better results than other advisers deliver." Reid's materials say only, and truthfully, that he cleared the first two levels at the first try. Has either new hire violated the CFA Institute Standards of Professional Conduct?

A Only one of them has violated the Standards.

B Both of them have violated the Standards.

C Neither of them has violated the Standards.

Question 394

Anika Sorensen, CFA, learned in March that a national securities regulator had opened an investigation into her trading practices. When she completes her annual Professional Conduct Statement in May, she answers "no" to the question asking whether she is the subject of any regulatory investigation. Sorensen has *most likely* violated:

A Standard VII(A) Conduct as Participants in CFA Institute Programs.

B Standard V(C) Record Retention.

C no Standard, because the investigation has not yet reached a conclusion.

102 Application of the Code and Standards: Level I

Question 395

Kwame Mensah, CFA, finds that his manager has breached a national securities regulation. Mensah raises the matter with his firm's compliance department, which does nothing about it. Under the Code and Standards, Mensah is required to:

A report the breach to the securities regulator.

B confront his manager and try to stop the breach.

C dissociate himself from his manager's activity.

Question 396

Dmitri Volkov, CFA, an investment adviser, uses soft dollars generated by client trades to pay for two things: a subscription to a macroeconomic research service that he uses in managing client portfolios, and new leather chairs for the reception area where he meets clients and prospects. Under Standard III(A) Loyalty, Prudence, and Care:

A only one of the two purchases is a violation.

B both of the two purchases are violations.

C neither of the two purchases is a violation.

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Question 397

Imogen Achterberg, CFA, runs portfolios for about 350 private clients and has little spare research capacity. Several of her largest clients ask her to add a 4% to 6% allocation to emerging market local-currency bonds, so she plans to base her bond selections on reports bought from an outside research provider that specializes in that sector. In judging whether the provider's research gives her a reasonable basis, the factor Achterberg should *least likely* rely on is:

A the assumptions behind the provider's analysis and how rigorous that analysis is.

B the high return its model portfolio earned last year.

C how timely the research is and whether its recommendations are objective and independent.

Question 398

Tariq Haddad and Lena Vogt each cleared the Level I exam and have registered to sit for Level II. The headline of Haddad's online professional profile reads "Tariq Haddad, CFA Level I." Vogt's résumé describes her as a "Level II Candidate in the CFA Program." Under Standard VII(B) Reference to CFA Institute, the CFA Designation, and the CFA Program:

A Haddad violated the Standard, but Vogt did not.

B Vogt violated the Standard, but Haddad did not.

C Both Haddad and Vogt violated the Standard.

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ETHICAL AND PROFESSIONAL STANDARDS

Answers and explanations

Answer key: 363. B · 364. C · 365. A · 366. C · 367. B · 368. A · 369. A · 370. C · 371. A · 372. B · 373. A · 374. C · 375. C · 376. A · 377. B · 378. C · 379. B · 380. C · 381. B · 382. C · 383. A · 384. B · 385. B · 386. C · 387. B · 388. C · 389. C · 390. A · 391. A · 392. B · 393. A · 394. A · 395. C · 396. A · 397. B · 398. A

Question 363 Answer: B

Ethics is a set of shared beliefs about what behavior is good or acceptable and what behavior is bad or unacceptable. It is broader than any particular written rulebook and broader than one person's view.

Why the other options are wrong

- **A.** A written code of standards is one way a group expresses its ethics; it is narrower than ethics itself.
- **C.** A single person's belief about proper conduct is a personal view. Ethics rests on beliefs that are commonly shared.

Key takeaway Ethics means commonly shared beliefs about good and bad behavior. It is broader than one person's view or a single written code.

Reading 93: Ethics and Trust in the Investment Profession. Notes: credguild.com/cfa/level-1/notes/ethics/ethics-and-trust-in-the-investment-profession/

Question 364 Answer: C

What sets a profession apart is that its members commit to following one shared code of ethics. That commitment, together with specialized expertise, is what lets the public trust members of a profession.

Why the other options are wrong

- **A.** Pay levels do not define a profession; many well-paid occupations are not professions.
- **B.** How an individual views his or her work is personal and is not a defining characteristic of a profession.

Key takeaway A profession combines specialized knowledge with a shared code of ethics.

Reading 93: Ethics and Trust in the Investment Profession. Notes: credguild.com/cfa/level-1/notes/ethics/ethics-and-trust-in-the-investment-profession/

Question 365 Answer: A

Situational influences are pressures external to the decision maker, such as social pressure from colleagues, loyalty to a supervisor, and the lure of money or prestige. They are considered a more important determinant of the ethical quality of behavior than internal (personal) traits.

Why the other options are wrong

- **B.** The problem is not a lack of skill or knowledge; Dorsey is responding to pressure and incentives.
- **C.** People tend to overemphasize the role of their own personal traits in ethical behavior; external influences are considered the stronger driver.

Key takeaway Peer pressure, loyalty and money are situational influences, which are considered a stronger driver of ethical lapses than personal traits.

Reading 93: Ethics and Trust in the Investment Profession. Notes: credguild.com/cfa/level-1/notes/ethics/ethics-and-trust-in-the-investment-profession/

Question 366 Answer: C

The framework has four steps. Identify covers the relevant facts, the stakeholders and duties owed, the ethical principles and any conflicts of interest. Consider covers situational influences, additional guidance and alternative actions. The last two steps are Decide and act, and Reflect (was the outcome as anticipated, and why or why not?).

Why the other options are wrong

- **A.** These are qualitative characteristics of useful financial information from financial reporting. They are not steps in an ethical decision process.
- **B.** This resembles the steps of a financial analysis project; it has no step for identifying stakeholders and duties or for reflecting on ethical outcomes.

Key takeaway The four steps, in order: Identify, Consider, Decide and act, Reflect.

Reading 93: Ethics and Trust in the Investment Profession. Notes: credguild.com/cfa/level-1/notes/ethics/ethics-and-trust-in-the-investment-profession/

Question 367 Answer: B

A member or candidate may accept or reject a sanction proposed by the Professional Conduct staff. If it is rejected, the matter is referred to a disciplinary review panel of CFA Institute members, which holds a hearing.

Why the other options are wrong

- **A.** Rejecting a proposed sanction does not trigger an automatic suspension; it leads to a hearing.
- **C.** Rejection does not end the matter; the existing case is referred to a disciplinary review panel of CFA Institute members for a hearing.

Key takeaway A rejected sanction goes to a hearing before a disciplinary review panel.

Reading 94: Code of Ethics and Standards of Professional Conduct. Notes: credguild.com/cfa/level-1/notes/ethics/code-of-ethics/

Question 368 Answer: A

Standard VII(A) Conduct as Participants in CFA Institute Programs forbids members and candidates to do anything that damages the reputation or integrity of CFA Institute or the CFA designation, or that undermines the integrity, validity or security of CFA Institute programs (for example, cheating on the CFA exam or disclosing its content). This is a specific Standard: none of the six components of the Code of Ethics mentions CFA Institute, the CFA designation or its programs, so Adler should mark this duty "Standard".

Why the other options are wrong

- **B.** Placing the integrity of the investment profession and the interests of clients above one's own personal interests is the second component of the Code of Ethics, so this card should be marked "Code".
- **C.** Promoting the integrity and viability of the global capital markets for the ultimate benefit of society is the fifth component of the Code of Ethics, so this card should be marked "Code".

Key takeaway The Code's six components are broad principles; the duty to protect the reputation and integrity of CFA Institute, the CFA designation and the CFA exams comes from Standard VII(A).

Reading 94: Code of Ethics and Standards of Professional Conduct. Notes: credguild.com/cfa/level-1/notes/ethics/code-of-ethics/

Question 369 Answer: A

Standard I(C) Misrepresentation prohibits members and candidates from knowingly making misrepresentations about their professional activities, and this includes claims, spoken or written, about what their firm is able to offer clients. Varga did not know whether her claim was true, so presenting it as fact was misleading even though it was not a deliberate lie. Once she learned it was false, she was obliged to go back to the prospect and set the record straight, and she did not.

Why the other options are wrong

- **B.** The first statement was already a violation: asserting the firm's expertise without knowing whether it existed misrepresented the firm's services.
- **C.** A lack of intent does not excuse the claim. Presenting an unverified claim as fact is misleading, and failing to correct it after learning the truth is a further violation.

Key takeaway Standard I(C) Misrepresentation: do not present as fact something not known to be true, and correct a misstatement as soon as it comes to light.

Reading 94: Code of Ethics and Standards of Professional Conduct. Notes: credguild.com/cfa/level-1/notes/ethics/code-of-ethics/

Question 370 Answer: C

Under Standard I(A) Knowledge of the Law, when applicable laws and the Code and Standards differ, members must follow the strictest requirement: the law where they live, the law where they do business (including the law governing their clients' accounts), or the Code and Standards. Because Canadian law still governs his dealings with Canadian clients, Batiste must meet the stricter of Canadian law and the Code and Standards.

Why the other options are wrong

- **A.** Moving to a less strict jurisdiction does not lower the standard. Disclosing the differences to clients does not allow a member to follow a weaker rule.
- **B.** The Code and Standards are a minimum, not the only rule. If applicable law (here, Canadian law) is stricter on a point, the member must comply with that law as well.

Key takeaway When several rule sets apply, follow the strictest one. Moving offshore never lowers the bar.

Reading 95: Guidance for Standard I: Professionalism. Notes: credguild.com/cfa/level-1/notes/ethics/knowledge-of-the-law/

Question 371 Answer: A

Standard I(E) requires members to act with and maintain the competence (abilities, skills and knowledge) that their professional responsibilities require. When a member accepts a new or unfamiliar role, it is her own responsibility to develop the competence that role calls for, for example through study, training, or working with experienced colleagues.

Why the other options are wrong

- **B.** Employer training can help, but the responsibility for acquiring the needed competence rests with the member.
- **C.** The Standard does not bar members from new roles or asset classes; it requires them to become competent in them.

Key takeaway A new role calls for new competence, and the member, not the employer, is responsible for acquiring it.

Reading 95: Guidance for Standard I: Professionalism. Notes: credguild.com/cfa/level-1/notes/ethics/knowledge-of-the-law/

Question 372 Answer: B

Standard III(C) Suitability requires an adviser to make a reasonable inquiry into a client's objectives and constraints before acting and to reassess and update that information regularly. Waiting for a trigger event, such as a portfolio change or news of a change in the client's life, is not enough, because circumstances can change without the adviser being told.

Why the other options are wrong

- **A.** Tying updates to portfolio changes gets the logic backwards: portfolio decisions should rest on current client information, which must be refreshed regularly.
- **C.** Updating after a known change is necessary but not sufficient; the Standard calls for regular reassessment so that unreported changes are picked up.

Key takeaway Client profiles are not one-off: reassess them regularly (and at least whenever a material change becomes known).

Reading 95: Guidance for Standard I: Professionalism. Notes: credguild.com/cfa/level-1/notes/ethics/knowledge-of-the-law/

Question 373 Answer: A

Changing a recommendation on the strength of a colleague's incomplete notes, without any review or analysis of her own, shows a lack of diligence and thoroughness and leaves the new recommendation without a reasonable and adequate basis, violating Standard V(A).

Why the other options are wrong

- **B.** Nothing in the facts suggests that an outside party or incentive compromised her independence or objectivity; the failure is one of inadequate research.
- **C.** The facts do not show her placing her own or her employer's interests ahead of clients; the problem is the missing research basis for the recommendation.

Key takeaway A recommendation needs a reasonable and adequate basis, and a colleague's unfinished notes are not one.

Reading 95: Guidance for Standard I: Professionalism. Notes: credguild.com/cfa/level-1/notes/ethics/knowledge-of-the-law/

Question 374 Answer: C

Standard VII(B) Reference to CFA Institute, the CFA Designation, and the CFA Program permits factual statements, for example that the three managers are entitled to call themselves CFA charterholders, and allows reference to candidacy when the individuals are currently registered for an exam. Saying that earning the charter or pursuing it reflects dedication to the profession and a commitment to high ethical standards is also acceptable. Nothing in the item claims or implies superior investment results.

Why the other options are wrong

- **A.** The item speaks about dedication and ethics; it says nothing about investment results, so it does not imply superior performance.

- **B.** Saying that the managers have been awarded the right to use the designation is a proper statement of fact.

Key takeaway Allowed: facts about holding the designation, current candidacy, and commitment to ethics. Not allowed: claims that the charter or candidacy means superior performance.

Reading 95: Guidance for Standard I: Professionalism. Notes: credguild.com/cfa/level-1/notes/ethics/knowledge-of-the-law/

Question 375 Answer: C

A pending merger is material, and Okafor has confirmed it has not been made public. Executing the trade would mean acting (and helping the insider act) on material nonpublic information, which Standard II(A) prohibits: Members and Candidates must not act or cause others to act on such information.

Why the other options are wrong

- **A.** Fair Dealing is about treating clients fairly when disseminating recommendations and executing trades; it never requires a member to execute a trade that violates Standard II(A).
- **B.** Whose account benefits is irrelevant: buying for trusts set up for family members on the strength of inside information is still acting on material nonpublic information, and no duty to a client overrides Standard II(A).

Key takeaway Once a client reveals material nonpublic information behind an order, the member may not execute it. The identity of the account holder does not change that.

Reading 96: Guidance for Standard II: Integrity of Capital Markets. Notes: credguild.com/cfa/level-1/notes/ethics/material-nonpublic-information/

Question 376 Answer: A

Posting false, damaging claims to move the share price spreads false information with the intent to mislead, which violates Standard II(B). Her short sale, made weeks earlier on her own view of value, was not intended to mislead anyone, so the trade itself is not a violation.

Why the other options are wrong

- **B.** A short sale based on a genuine valuation view is not a trade intended to mislead. Only the false postings violate the Standard.
- **C.** This reverses the facts. The violation lies in the false claims she posted; her trade was legitimate.

Key takeaway Taking a position is legitimate. Spreading false information to move the price toward that position violates Standard II(B).

Reading 96: Guidance for Standard II: Integrity of Capital Markets. Notes: credguild.com/cfa/level-1/notes/ethics/material-nonpublic-information/

Question 377 Answer: B

Engel pieced together nonmaterial nonpublic information to reach a conclusion. Under the mosaic theory, he may use that conclusion for investment recommendations and trading even though the conclusion itself would be material.

Why the other options are wrong

- **A.** Treats the material conclusion as if it were material nonpublic information received from the company; the mosaic theory permits it.

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- **C.** No compliance approval is required for a legitimate mosaic conclusion (although keeping research records is good practice).

Key takeaway A material conclusion built from nonmaterial pieces may be used under the mosaic theory.

Reading 96: Guidance for Standard II: Integrity of Capital Markets. Notes: credguild.com/cfa/level-1/notes/ethics/material-nonpublic-information/

Question 378 **Answer: C**

Soft dollars come from client brokerage, which is an asset of the client. Under Standard III(A) Loyalty, Prudence, and Care, they must be used to benefit the client, for example by paying for research that assists in managing client accounts. Emerging-market equity research helps manage the fund and is acceptable; a credit newsletter on bonds that only Ferraz owns benefits her personally and is a violation.

Why the other options are wrong

- **A.** Research on emerging-market companies is directly relevant to the fund's holdings, so buying it with the fund's soft dollars is appropriate.
- **B.** The credit newsletter serves only Ferraz's personal bond holdings; paying for it with client brokerage uses client assets for her own benefit.

Key takeaway Ask whether the soft-dollar purchase benefits the client. Research that helps manage client accounts does; research on the manager's personal holdings does not.

Reading 97: Guidance for Standard III: Duties to Clients. Notes: credguild.com/cfa/level-1/notes/ethics/duties-to-clients/

Question 379 **Answer: B**

Standard III(B) Fair Dealing requires fair, not identical, treatment. Olsen gave every client the chance to receive e-mail, sent the e-mail to all who responded and mailed the report to everyone on the same day. That dissemination is fair to all clients.

Why the other options are wrong

- **A.** Every client was invited to provide an e-mail address; those who did not simply receive the report by post. Offering the same option to all is fair.
- **C.** Using a faster channel for clients who chose it, with same-day mailing to everyone, is not preferential treatment.

Key takeaway Fair Dealing means fair, not equal: different delivery channels are fine if offered to all and used promptly.

Reading 97: Guidance for Standard III: Duties to Clients. Notes: credguild.com/cfa/level-1/notes/ethics/duties-to-clients/

Question 380 **Answer: C**

When a client makes an unsolicited request for an unsuitable trade, the member should discuss it with the client before acting. Because this trade would have a material effect on the portfolio, the right step is to discuss whether it reflects a change in her objectives and risk tolerance, i.e., whether she wants to update her investment policy statement.

Why the other options are wrong

- **A.** Refusing outright is premature. The first step is a discussion with the client; only if she will not update her IPS might the member follow firm policy, such as a separate client-directed account, or reconsider the relationship.
- **B.** Obtaining the client's acknowledgement under firm procedures is appropriate when an unsuitable unsolicited trade has only a minor effect on the portfolio. Here the effect is material.

Key takeaway For an unsolicited, unsuitable trade, a minor effect on the portfolio leads to the firm's acknowledgement procedure; a material effect leads to a discussion of updating the IPS.

Reading 97: Guidance for Standard III: Duties to Clients. Notes: credguild.com/cfa/level-1/notes/ethics/duties-to-clients/

Question 381 Answer: B

The fund has just been created and has no track record. Presenting the back-filled returns of its current holdings as the fund's historical return implies that Carden earned that return, which is not fair, accurate and complete under Standard III(D) Performance Presentation. Using only the bonds the fund holds today also introduces survivorship bias.

Why the other options are wrong

- **A.** Accurate arithmetic does not make the presentation fair: the fund never earned the 14%, and the figure ignores bonds that might have been sold or defaulted.
- **C.** The Standards do not ban presenting historical returns on risky assets; they require such presentations to be fair, accurate and complete.

Key takeaway A new fund has no history, so back-filled returns presented as its record are misleading.

Reading 97: Guidance for Standard III: Duties to Clients. Notes: credguild.com/cfa/level-1/notes/ethics/duties-to-clients/

Question 382 Answer: C

Standard III(E) lets a member disclose information that concerns illegal activities on the part of the client. Suspected money laundering falls under that exception, so the Standard does not bar Ferrante from reporting his conclusion to the authorities, and he may even have an obligation to report it. The same exception means that telling CFA Institute is not prohibited either. Neither action is prohibited. When unsure, the member consults compliance or legal counsel.

Why the other options are wrong

- **A.** The illegal-activity exception covers this disclosure as well, so Standard III(E) does not prohibit sharing the information with CFA Institute.
- **B.** The illegal-activity exception applies, so reporting to the appropriate authorities is permitted and may even be required.

Key takeaway Confidentiality does not shield a client's illegal activity, so Standard III(E) does not bar disclosing it.

Reading 97: Guidance for Standard III: Duties to Clients. Notes: credguild.com/cfa/level-1/notes/ethics/duties-to-clients/

Question 383 Answer: A

Under Standard IV(A) Loyalty, before engaging in independent practice for compensation, members must notify the employer of the services to be provided, their expected duration and the compensation, and must obtain the employer's consent before starting.

Why the other options are wrong

- **B.** Disclosure alone is not enough; the employer's consent is required before the paid work begins.
- **C.** Independent practice is not prohibited outright; it is allowed once the employer consents.

Key takeaway Paid outside advisory work: notify the employer (services, duration, pay) and obtain consent.

Reading 98: Guidance for Standard IV: Duties to Employers. Notes: credguild.com/cfa/level-1/notes/ethics/duties-to-employers/

Question 384 **Answer: B**

Standard IV(B) applies because the personal discount depends on Harrowby's business. Before Ross accepts it, she must obtain written consent from all parties involved; in practice, that includes written disclosure to and consent from Harrowby.

Why the other options are wrong

- **A.** The Standard does not require refusal. It requires written consent from all parties involved before she accepts.
- **C.** Competitive commissions for the firm do not change the fact that Ross personally gains from the firm's business; she still needs written consent before accepting the benefit.

Key takeaway A personal benefit tied to the employer's business requires written consent from all parties involved before it is accepted.

Reading 98: Guidance for Standard IV: Duties to Employers. Notes: credguild.com/cfa/level-1/notes/ethics/duties-to-employers/

Question 385 **Answer: B**

Standard IV(C) Responsibilities of Supervisors covers everyone under a member's authority, whether or not they are members or candidates. When a weak or missing compliance system makes proper supervision impossible, the member must decline the supervisory role in writing until adequate procedures are in place.

Why the other options are wrong

- **A.** Urging the firm is necessary but not sufficient; without an adequate system Mehta cannot discharge his duties, so he should decline the responsibility in writing.
- **C.** The Standard does not call for a complaint to CFA Institute about the firm; the appropriate response is to decline supervisory responsibility in writing.

Key takeaway Without an adequate compliance system, the member declines supervisory responsibility in writing until one exists.

Reading 98: Guidance for Standard IV: Duties to Employers. Notes: credguild.com/cfa/level-1/notes/ethics/duties-to-employers/

Question 386 **Answer: C**

Under Standard V(A) Diligence and Reasonable Basis, members who rely on third-party research must make reasonable and diligent efforts to determine that the research is sound, for example by reviewing its assumptions, rigor, timeliness and independence. Standard V(A) is about checking that the research is sound; it does not require her to name each provider in her recommendations.

Why the other options are wrong

- **A.** Relying on third-party research is allowed; the Standards do not require members to produce all research themselves.
- **B.** Naming each outside provider is not a requirement of Standard V(A); what the Standard requires is diligence about whether the research is sound.

Key takeaway A member who uses third-party research must make reasonable and diligent efforts to check that it is sound (Standard V(A)).

Reading 99: Guidance for Standard V: Investment Analysis, Recommendations, and Actions. Notes: credguild.com/cfa/level-1/notes/ethics/investment-analysis-recommendations-and-actions/

Question 387 **Answer: B**

Standard V(B) Communication with Clients and Prospective Clients requires members to distinguish between fact and opinion. The dividend cut is Moreau's prediction, yet she states it as something that "will" happen. Her comment that the total return "could" exceed 18% is properly phrased as an opinion.

Why the other options are wrong

- **A.** "Could earn a total return above 18%" is a qualified opinion. It does not promise or guarantee a return.
- **C.** Stating the predicted dividend cut as a certainty is a failure to separate opinion from fact.

Key takeaway Watch the verbs: "will" states a fact, "could" states an opinion.

Reading 99: Guidance for Standard V: Investment Analysis, Recommendations, and Actions. Notes: credguild.com/cfa/level-1/notes/ethics/investment-analysis-recommendations-and-actions/

Question 388 **Answer: C**

Standard V(C) Record Retention requires records that support investment analysis and recommendations. The original records belong to the bank, and memory is not a record. Before reissuing the reports, Ashe must re-create the supporting documentation from public sources or information obtained from the covered companies.

Why the other options are wrong

- **A.** Publishing research with no supporting records breaches V(C).
- **B.** His analysis may well have been diligent and reasonably based when he did it; the specific failure is the absence of supporting records now.

Key takeaway Records belong to the employer. At a new firm, the member rebuilds the records from public or company sources before reusing old research.

Reading 99: Guidance for Standard V: Investment Analysis, Recommendations, and Actions. Notes: credguild.com/cfa/level-1/notes/ethics/investment-analysis-recommendations-and-actions/

Question 389 **Answer: C**

Standard VI(A) requires members to disclose to clients and prospects matters that could reasonably be expected to impair objectivity. It does not prohibit an analyst with potential conflicts from writing the report; the investment banking relationship and the directorships must be disclosed.

Why the other options are wrong

- **A.** Independence and objectivity are required, but they do not replace disclosure: clients must be told about the relationships so they can judge the report.
- **B.** The Standard does not bar the analyst from writing the report; it requires the conflicts to be disclosed.

Key takeaway Conflicts rarely forbid the work. They require disclosure.

Reading 100: Guidance for Standard VI: Conflicts of Interest. Notes: credguild.com/cfa/level-1/notes/ethics/conflicts-of-interest/

Question 390 Answer: A

The recommended procedures call for blackout or restricted periods before client trades for employees involved in investment decision-making, so that no one front-runs client or employer transactions. The size of the firm and the type of security should help decide how severe the blackout requirement is.

Why the other options are wrong

- **B.** The blackout applies because of an employee's role in investment decisions. Seniority and years of service are not the factors that set its strictness.
- **C.** The number of clients and the size of their accounts are not the factors the recommended procedures name for setting the blackout's strictness.

Key takeaway Blackout periods apply to employees involved in investment decision-making, and their strictness should reflect the size of the firm and the type of security.

Reading 100: Guidance for Standard VI: Conflicts of Interest. Notes: credguild.com/cfa/level-1/notes/ethics/conflicts-of-interest/

Question 391 Answer: A

The free legal work Natarajan performs for Ashby is a benefit paid to another person in return for recommending her services, so it is a referral fee under Standard VI(C). Now that she is a CFA Institute member, she must disclose the arrangement to the prospective clients Ashby refers, including the nature of the benefit and an estimate of its value, so they can judge any partiality in Ashby's recommendation.

Why the other options are wrong

- **B.** Disclosing that the arrangement exists is not enough: the Standard expects the nature and the estimated value of the benefit to be disclosed so the client can weigh it.
- **C.** Standard VI(C) does not prohibit referral arrangements; it requires that they be disclosed. Ending the arrangement is not required.

Key takeaway Referral consideration can be non-cash (free services, gifts, discounts). Disclose its nature and estimated value.

Reading 100: Guidance for Standard VI: Conflicts of Interest. Notes: credguild.com/cfa/level-1/notes/ethics/conflicts-of-interest/

Question 392 Answer: B

Under Standard VII(A) Conduct as Participants in CFA Institute Programs, confidential information about the exam may not be disclosed, and that obligation continues after the exam and after the testing window has closed. Posting remembered exam questions is therefore a violation; discussing the curriculum itself in the forum beforehand was not.

Why the other options are wrong

- **A.** Confidentiality of exam content does not expire when the testing window closes.
- **C.** Discussing the curriculum itself before the exam is permitted; the violation is disclosing exam content.

Key takeaway Curriculum discussion is allowed. Exam content stays confidential with no time limit.

Reading 101: Guidance for Standard VII: Responsibilities as a CFA Institute Member or CFA Candidate. Notes: credguild.com/cfa/level-1/notes/ethics/responsibilities-as-a-cfa-institute-member/

Question 393 **Answer: A**

Tanaka violated Standard VII(B) Reference to CFA Institute, the CFA Designation, and the CFA Program. Stating that she passed each level at the first try is allowed, but claiming superior ability because of it, and promising better results, is not. Reid's statement about his first-try passes is a true fact with no claim attached, so it is allowed.

Why the other options are wrong

- **B.** Reid's statement is factual and does not imply a partial designation or superior ability, so he has not violated the Standard.
- **C.** Promising better results because the exams were passed on the first attempt is a promotional promise tied to the CFA Program, so Tanaka has violated the Standard.

Key takeaway Levels passed, even "on the first try," are facts that may be stated. Claiming superior ability or better results because of them is a violation.

Reading 101: Guidance for Standard VII: Responsibilities as a CFA Institute Member or CFA Candidate. Notes: credguild.com/cfa/level-1/notes/ethics/responsibilities-as-a-cfa-institute-member/

Question 394 **Answer: A**

Misrepresenting information on the Professional Conduct Statement compromises the integrity of CFA Institute programs and is conduct that Standard VII(A) Conduct as Participants in CFA Institute Programs expressly covers. Her answer is false whether or not the regulator eventually finds wrongdoing.

Why the other options are wrong

- **B.** V(C) concerns keeping records that support investment analysis and client communications, not answers given to CFA Institute.
- **C.** The question asks whether she is the subject of an investigation, which she is; answering falsely is the violation, regardless of the outcome.

Key takeaway False statements on the Professional Conduct Statement violate VII(A).

Reading 101: Guidance for Standard VII: Responsibilities as a CFA Institute Member or CFA Candidate. Notes: credguild.com/cfa/level-1/notes/ethics/responsibilities-as-a-cfa-institute-member/

Question 395 **Answer: C**

Under Standard I(A) Knowledge of the Law, Mensah has already tried to stop the violation by going to compliance. Because that failed, he must dissociate from the activity; one way is to request a move away from the work involved. Reporting to regulators is not something the Code and Standards demand unless applicable law requires it, and a personal confrontation with his manager is not required either.

Why the other options are wrong

- **A.** Reporting to regulators may be advisable, but the Code and Standards do not require it unless the law does.

- **B.** He has already made a reasonable attempt to stop the violation through compliance; a personal confrontation is not required.

Key takeaway Escalate internally first; if that fails, dissociate. Reporting to authorities is required only when the law requires it.

Reading 102: Application of the Code and Standards: Level I. Notes: credguild.com/cfa/level-1/notes/ethics/application-of-the-code-and-standards-level-i/

Question 396 **Answer: A**

Client brokerage (soft dollars) belongs to the clients and may be used only for goods and services that benefit them. Research used in managing client portfolios qualifies, although the adviser should ensure it does benefit the clients. Office furniture does not benefit clients, so paying for it with soft dollars violates Standard III(A).

Why the other options are wrong

- **B.** The research subscription is a permitted use because it is used in managing client portfolios.
- **C.** Chairs for the reception area are an office expense that does not benefit clients; paying for them with client brokerage is a violation.

Key takeaway Soft dollars may pay for research that benefits clients. Furniture and overhead do not qualify.

Reading 102: Application of the Code and Standards: Level I. Notes: credguild.com/cfa/level-1/notes/ethics/application-of-the-code-and-standards-level-i/

Question 397 **Answer: B**

Under Standard V(A) Diligence and Reasonable Basis, a member who uses third-party research must make reasonable and diligent efforts to judge whether it is sound. The review looks at the assumptions used, how rigorous the analysis is, how timely the research is, and how objective and independent its recommendations are. One year of high returns on a model portfolio is not one of these tests and says little about whether the research itself is sound.

Why the other options are wrong

- **A.** Reviewing the assumptions and the rigor of the analysis is a core part of judging whether third-party research is sound.
- **C.** Timeliness, objectivity and independence are among the qualities a member checks before relying on outside research.

Key takeaway Judge third-party research by its assumptions, rigor, timeliness, objectivity and independence; a recent high return is not a test of its soundness.

Reading 102: Application of the Code and Standards: Level I. Notes: credguild.com/cfa/level-1/notes/ethics/application-of-the-code-and-standards-level-i/

Question 398 **Answer: A**

There is no designation for having passed Level I, II or III, so "CFA Level I" after a name implies a designation that does not exist and violates Standard VII(B). A candidate may, however, accurately state candidacy ("Level II Candidate in the CFA Program") or that a level has been completed.

Why the other options are wrong

- **B.** Vogt's wording correctly describes her status as a candidate registered for Level II, which is permitted.

- **C.** Only Haddad's wording implies a partial designation; Vogt's is acceptable.

Key takeaway Never write "CFA Level I/II/III" as if it were a title; describe candidacy or completed levels instead.

Reading 102: Application of the Code and Standards: Level I. Notes: credguild.com/cfa/level-1/notes/ethics/application-of-the-code-and-standards-level-i/

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