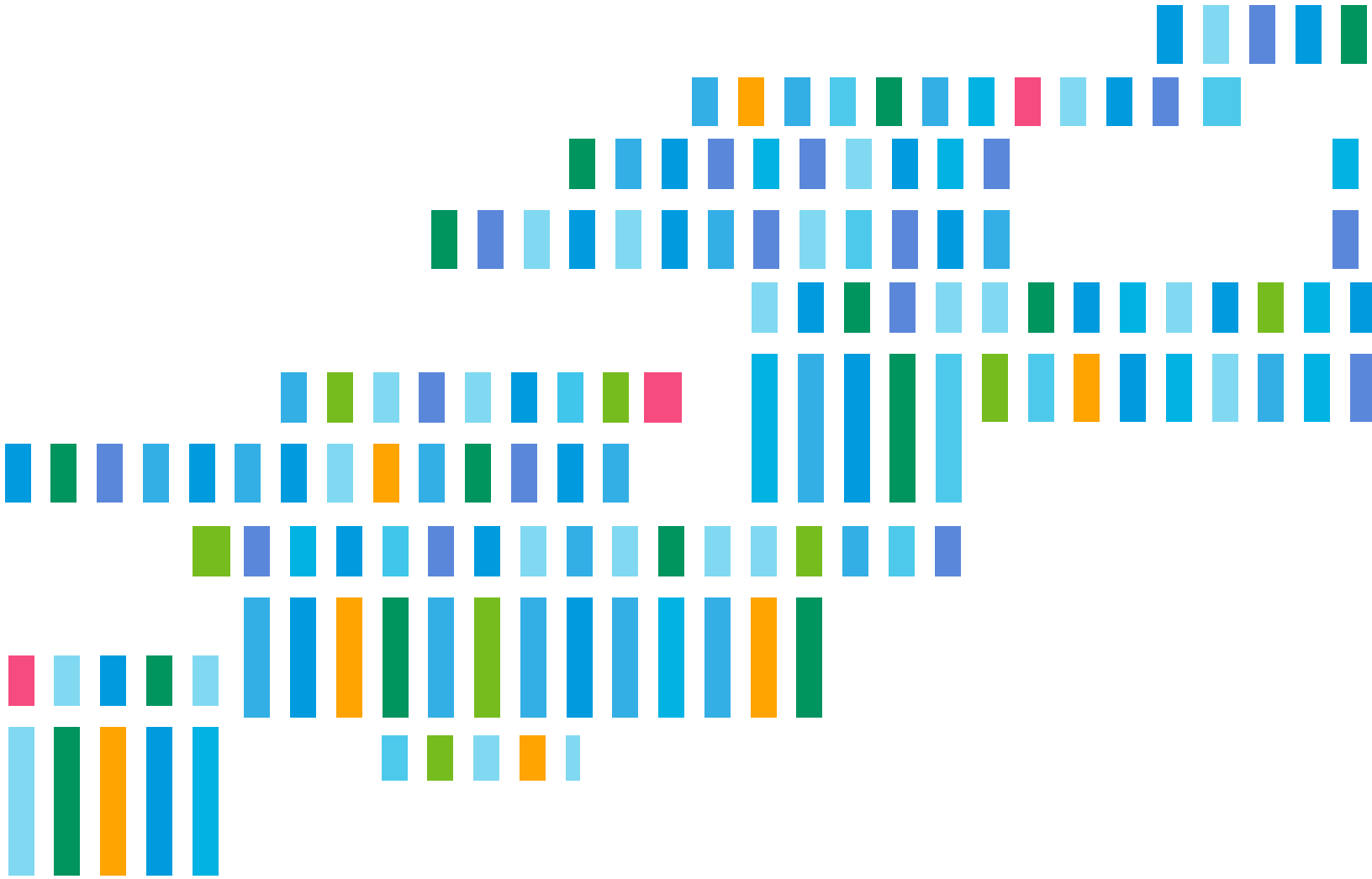# SAMPLE LEVEL I MULTIPLE CHOICE QUESTIONS

CFA Institute

QUESTION 1

The belief that one's ethical standards are above average is *most likely* a reflection of which of the following behavioral biases?

A. Overconfidence

B. Short-term focus

C. Situational influence

A is correct. The belief that one's ethical standards are above average illustrates an overconfidence bias. An overconfidence bias will most likely lead individuals to overestimate the morality of their own behavior and can lead to a failure to consider important inputs and variables needed to make the best ethical decisions.

C is incorrect. Situational influences are external factors that shape our thinking, decision making, and behavior. Learning to recognize a situational influence is critical to making good decisions however it is not a behavioral bias.

B is incorrect. A short-term focus is an aspect of situation influences. Our brains more easily and quickly identify, recognize, and consider short-term situational influences versus longer-term considerations. Long-term considerations have less immediate consequences making them less obvious as factors to consider in a decision and therefore, less likely to influence our overall decision making.

SOURCE

"Ethics and Trust in the Investment Profession," Bidhan L. Parmar, Dorothy C. Kelly, David B. Stevens

QUESTION 2

A regulator who requires financial advisers to merely consider the suitability of a product when making recommendations to their clients would *most likely* be setting:

A. both a legal and an ethical standard.

B. an ethical standard.

C. a legal standard.

C is correct. The regulator only sets a legal standard when requiring a financial adviser to merely consider suitability when making recommendations to their clients. Requiring advisers to act as fiduciaries would be setting both a legal and an ethical standard; it would require the interests of the client to be above those of the firm or employee.

B is incorrect. The regulator is not setting an ethical standard by requiring a financial advisor to consider suitability, they are setting a legal standard.

A is incorrect. Requiring financial advisors to act as fiduciaries would be setting both a legal and an ethical standard by requiring the interests of the client to be above those of the firm or employee.

QUESTION 3

Under what circumstances could a client possibly win a lawsuit against a financial adviser, despite the financial adviser abiding by all regulatory and legal requirements?

A. The adviser benefiting more from the relationship than the client

B. The adviser not being subject to a code of ethics

C. The adviser violating his employer's published code of ethics

C is correct. If the client could prove the firm marketed its code of ethics (i.e., putting the interests of the client first) as a reason to hire the firm and the adviser violated the code, the court may rule in the client's favor.

B is incorrect because unethical behavior is not necessarily illegal. However, if the client could prove the firm marketed their code of ethics; i.e. putting the interests of the client first for a reason to hire the firm, and the advisor violated the code, the court may rule in the client's favor.

A is incorrect because an advisor can still act in a fiduciary manner while benefiting more than the client. This is particularly true when investment returns are unexpectedly negative and the client pays fees to the advisor.

QUESTION 4

A financial contract offers to pay €1,200 per month for five years with the first payment made immediately. Assuming an annual discount rate of 6.5%, compounded monthly, the present value of the contract is *closest* to:

A. €61,330.

B. €61,663.

C. €63,731.

B is correct. Using a financial calculator: N=60; the discount rate, I/Y=(6.5/12)=0.54166667; PMT=1,200; FV=0; Mode=Begin; Calculate PV: PV=**61,662.62**.

Alternatively: Treat the stream as an ordinary annuity of 59 periods and add the current value of 1,200 to the derived answer. Using a financial calculator: N=59; the discount rate, I/Y=(6.5/12)= 0.54166667; PMT=1,200; FV=0; Mode = End; Calculate PV: PV = 60,462.62 ; Total PV = 1,200 + 60,462.62= **61,662.62**.

A is incorrect. This is the PV of a 60 months ordinary annuity. N=60, I/Y = 6.5/12, PMT=1,200, FV=0. Mode = End; Calculate PV: PV =61,330.41.

C is incorrect. This is the PV of an annuity due of 5 periods, 6.5% interest, and payments of 14,400 (1,200 × 12): N=5, I/Y = 6.5, PMT=14,400, FV=0. Mode = Begin; Calculate PV = 63,731.49.

SOURCE
"The Time Value of Money," Richard A. DeFusco, CFA, Dennis W. McLeavey, CFA, Jerald E. Pinto, CFA, and David E. Runkle, CFA

QUESTION 5
An analyst has established the following prior probabilities regarding a company's next quarter's earnings per share (EPS) exceeding, equaling, or being below the consensus estimate.

	Prior probabilities
EPS exceed consensus	25%
EPS equal consensus	55%
EPS are less than consensus	20%

Several days before releasing its earnings statement, the company announces a cut in its dividend. Given this new information, the analyst revises his opinion regarding the likelihood that the company will have EPS below the consensus estimate. He estimates the likelihoods the company will cut the dividend given that EPS exceeds/meets/falls below consensus as reported below.

	Probabilities the company cuts dividends conditional on EPS exceeding/equaling/falling below consensus
P(Cut div │EPS exceed)	5%
P(Cut div │ EPS equal)	10%
P(Cut div │ EPS below)	85%

The analyst therefore determines that the unconditional probability for a cut in the dividend, P(Cut div), is equal to 23.75%. Using Bayes' Formula, the updated (posterior) probability that the company's EPS are below the consensus is *closest* to:

A. 20%.

B. 72%.

C. 85%.

B is correct. Bayes' Formula:

$$\text{Updated probability of event given the new information} = \frac{\text{Probability of the new information given event}}{\text{Unconditional probability of the new information}} \times \text{Prior probability of event}$$

where

dated probability of event given the new information: P(EPS below │ Cut div);

Probability of the new information given event: P(Cut div │ EPS below) = 85%;

Unconditional probably of the new information: P(Cut div) = 23.75%;

Prior probability of event: P(EPS below) = 20%.

Therefore, the probability of EPS falling below the consensus is updated as:

P(EPS below │ Cut div) = [P(Cut div │ EPS below) / P(Cut div)] × P(EPS below) = (0.85 / 0.2375) × 0.20 = 0.71579 ~ **72%**

A is incorrect. It simply multiplies the unconditional probability for a cut in the dividend with the conditional probability of a cut in the dividend given that EPS falls below consensus: P(Cut div) × P(Cut div │ EPS below) = 0.2375 × 0.85 = 20.188.%

C is incorrect. It is the given P(Cut div │ EPS below).

SOURCE

"Probability Concepts," Richard A. DeFusco, CFA, Dennis W. McLeavey, CFA, Jerald E. Pinto, CFA, and David E. Runkle, CFA

QUESTION 6

The market demand for item X is a function of its price, household income and the price of item Y.

Own-price elasticity of demand for X	−0.8
Income elasticity of demand for X	1.5
Cross-price elasticity of demand for X with respect to the price of Y	0.4

Given the above elasticity coefficients for the two items, which of the following statements is *most* accurate?

A. X and Y are substitutes.

B. Demand for X is elastic.

C. Item X is an inferior good.

A is correct. The cross-price elasticity is positive, indicating that as the price of Y increases, more of X is demanded, making X and Y substitutes.

B is incorrect. The absolute value of the own-price elasticity of demand is less than 1, indicating that demand is inelastic: a decrease in price of X by 1% leads to less than a 1% increase in demand.

C is incorrect. The income elasticity of demand is positive, indicating that as income increases, more of the good is purchased—hence X is a normal good, not an inferior one.

SOURCE

"Topics in Demand and Supply Analysis," Richard V. Eastin and Gary L. Arbogast

QUESTION 7

A New Zealand traveler returned from Singapore with SGD7,500 (Singapore dollars). A foreign exchange dealer provided the traveler with the following quotes:

Ratio	Spot Rates
USD/SGD	1.2600
NZD/USD	0.7670
USD: US dollar	
NZD: New Zealand dollar	

The amount of New Zealand dollars (NZD) that the traveler would receive for his Singapore dollars is *closest* to:

A. 4,565.

B. 7,248.

C. 7,761.

B is correct. The NZD/SGD cross-rate is NZD/USD × USD/SGD = 0.7670 × 1.26 = 0.9664

The traveler will receive: 0.9664 NZD per SGD; 0.9664 NZD/SGD × 7,500 SGD = **7,248** NZD

A is incorrect. It calculates NZD/SGD incorrectly by inverting USD/SGD:

0.7670 x 1/1.26 = 0.6087and multiplies by 7,500 = **4,565 NZD**.

This is equivalent to incorrectly first converting to USD: 1/1.26 x 7,500 SGD to give 5,952 USD and then converting to NZD: $5,952 x 0.7670 NZD/$ = **4,565 NZD**

C is incorrect. It calculates the cross rate ok, but divides it into 7,500: 7,500/0.9664 = **7,761**

QUESTION 8

At the start of the current year, Company A, which reports using U.S. GAAP, sold a piece of land to Company B for $10 million. The land had a cost of $6 million. Company B made a $2 million down payment with the remaining balance to be paid over the next 5 years. Over the course of the year, it has been determined that there is significant doubt about the ability and commitment of Company B to complete all payments. In the current year, Company A would *most likely* report a profit related to the sale of the land of:

A. $4 million using the accrual method.

B. $0.8 million using the installment method.

C. $2 million using the cost recovery method.

B is correct. Due to the uncertainty about collection of the remaining payments it would not be appropriate to use the accrual method. Under the installment method, the portion of the total profit that is recognized in each period is determined by the percentage of the total sales price for which the seller has received cash. Company A will recognize, 2/10 × $4 million = $0.8 million. Although the cost recovery method could have been used in this situation, the reported profit would be $0.

A is incorrect. Due to the significant doubt of the ability of the buyer to complete payment for a real estate sales contract, either the installment method or cost recovery method should be used to account for the profit. Therefore, it is inappropriate to book the entire $4 million profit in the current year when only the down payment of $2 million was made.

C is incorrect. Under the cost recovery method of revenue recognition, the company would not recognize any profit attributable to the down payment because the cash amounts paid by the buyer still do not exceed the cost of $6 million.

QUESTION 9

Which of the following ratios is *most likely* to be used as a measure of operating performance?

A. Defensive interval ratio

B. Cash ratio

C. Working capital turnover

C is correct. Activity ratios are typically used to measure operating performance. Working capital turnover is an example of an activity ratio, while the defensive interval ratio and cash ratio are liquidity ratios used to measure a company's ability to meet its short-term obligations.

A is incorrect. Defensive interval ratio is an example of a liquidity ratio.

B is incorrect. Cash ratio is an example of a liquidity ratio.

SOURCE

"Financial Analysis Techniques," Elaine Henry, CFA, Thomas R. Robinson, CFA, and Jan Hendrik van Greuning, CFA

QUESTION 10

At the beginning of the year a company purchased a fixed asset for $500,000 with no expected residual value. The company depreciates similar assets on a straight-line basis over 10 years, while the tax authorities allow declining balance depreciation at the rate of 15% per year. In both cases the company takes a full year's depreciation in the first year and the tax rate is 40%.

Which of the following statements concerning this asset at the end of the year is *most* accurate?

A. The tax base is $500,000.

B. The deferred tax asset is $10,000.

C. The temporary difference is $25,000.

C is correct. The temporary difference is the difference between the net book value of the asset for accounting purposes [500,000 – (500,000/10)] = $450,000 and the net book value for taxes [500,000 – 0.15(500,000) = $425,000]: 450,000 – 425,000 = $25,000.

NBV accounting	[500,000 – (500,000 ÷ 10)]	$450,000
NBV taxes	[500,000 – 0.15 × (500,000)]	$425,000
Temporary difference		$25,000

A is incorrect. The tax base of the asset is the amount that will be deductible for tax purposes in future periods. At the end of the year that amount is $425,000: 500,000 – 0.15(500,000)

B is incorrect. The difference will create a deferred tax liability of $10,000 (25,000 x 40%), not a deferred tax asset.

QUESTION 11

When computing the cash flows for a capital project, which of the following is *least likely* to be included?

A. Tax effects

B. Financing costs

C. Opportunity costs

B is correct. Financing costs are not included in a cash flow calculation, but are considered in the calculation of the discount rate.

A is incorrect because tax effects are considered in computing a firm's cash flows.

C is incorrect because opportunity costs are considered in computing a firm's cash flows.

QUESTION 12

A 20-year $1,000 fixed rate non-callable bond with 8% annual coupons currently sells for $1,105.94. Assuming a 30% marginal tax rate and an additional risk premium for equity relative to debt of 5%, the cost of equity using the bond-yield-plus-risk-premium approach is *closest* to:

A. 9.9%.

B. 12.0%.

C. 13.0%.

B is correct. First, determine the yield-to-maturity, which is the discount rate that sets the bond price to $1,105.94 and is equal to 7%. This can be done with a financial calculator: FV = −1000, PV = 1105.94, N = 20, PMT = −80, solve for I, which will equal 7%. The bond-yield-plus-risk-premium approach is calculated by adding a risk premium to the cost of debt (i.e. the yield-to-maturity for the debt) making the cost of equity 12.00% (= 7% + 5%).

A is incorrect because it uses the after-tax cost of debt: 9.90% = 7% × (1 − 30%) + 5%.

C is incorrect because it uses the coupon rate instead of the yield-to-maturity: 13.00% = 8% + 5%.

QUESTION 13

The behavioral bias in which investors tend to avoid realizing losses but, rather seek to realize gains is *best* described as:

A. disposition effect.

B. gambler's fallacy.

C. mental accounting.

A is correct. Behavioral biases in which investors tend to avoid realizing losses but, rather, seek to realize gains is disposition effect.

B is incorrect. Gambler's fallacy is behavioral bias in which recent outcomes affect investors' estimates of future probabilities.

C is incorrect. Mental accounting is behavioral bias in which investors keep track of the gains and losses for different investments in separate mental accounts.

QUESTION 14

The advantages to an investor owning convertible preference shares of a company *most likely* include:

A. less price volatility than the underlying common shares.

B. preference dividends that are fixed contractual obligations of the company.

C. an opportunity to receive additional dividends if the company's profits exceed a pre-specified level.

A is correct. Convertible preference shares tend to exhibit less price volatility than the underlying common shares because the dividend payments are known and more stable.

B is incorrect. Preference dividends are fixed but, unlike interest payment on debt, they are not contractual obligations of the company.

C is incorrect. An opportunity to receive additional dividend if the company's profits exceed a pre-specified level is the benefit that accrues to the holders of participating preferred shares, not convertible preference shareholders.

QUESTION 15

The following information is available about a company:

Next year's sales revenue	$180 million
Next year's net profit margin	15%
Dividend payout ratio	60%
Dividend growth rate expected during Years 2 and 3	25%
Dividend growth rate expected after Year 3	5%
Investors' required rate of return	12%
Number of outstanding shares	8.1 million

The current value per share of the company's common stock according to the two-stage dividend discount model is *closest* to:

A. $39.36.

B. $49.20.

C. $52.86

A is correct. Net profit margin = Net earnings ÷ Sales

Net earnings = Net profit margin × Sales;

Dividends per share ("D_n") = (Net earnings × Payout ratio) ÷ # of outstanding shares;

Therefore, D_1 = ($180 million × 0.15 × 0.60) ÷ 8.1 million = $2.00

D_2 = $2.00(1 + 0.25)=$2.50
D_3 = $2.00(1 + 0.25)^2$= $3.13
D_4 = $2.00(1 + 0.25)^2(1 + 0.05)$ = $3.28

$$V_3 = \frac{\$3.28}{(0.12-0.05)} = \$46.86$$

$$V_0 = \frac{\$2.00}{(1+0.12)} + \frac{\$2.50}{(1+0.12)^2} + \frac{\$3.13}{(1+0.12)^3} + \frac{\$46.86}{(1+0.12)^3} = \$39.36$$

B is incorrect. It has timing mistakes and starts supernormal growth in Year 1 itself.

V = $2(1.25)/1.12 + 2(1.25)^2/1.12^2 + 2(1.25)^3/1.12^3 + [2(1.25)^3(1.05)/(0.12 - 0.05)]/1.12^3$
   = $2.23 + $2.49 + $2.78 + $41.70 = $49.20

C is incorrect. It does not discount the terminal value of $46.86 in year 3 so

$$V_3 = \frac{\$3.28}{(0.12 - 0.05)} = \$46.86$$

$$V_0 = \frac{\$2.00}{(1+0.12)} + \frac{\$2.50}{(1+0.12)^2} + \frac{\$3.13}{(1+0.12)^3} + \$46.86 = \$52.86$$

SOURCE
"Equity Valuation: Concepts and Basic Tools," John J. Nagorniak, CFA, and Stephen E. Wilcox, CFA

QUESTION 16

When are credit spreads *most likely* to narrow? During:

A. economic expansions.

B. economic contractions.

C. a period of flight to quality.

A is correct. Credit spreads narrow during economic expansions and widen during economic contractions. During an economic expansion, corporate revenues and cash flows rise, making it easier for corporations to service their debt, and investors purchase corporates instead of Treasuries, thus causing spreads to narrow.

B is incorrect. Credit spreads narrow during economic expansions and widen during economic contractions.

C is incorrect. During a flight to quality investors sell corporate and buy treasuries thereby widening the credit spread on corporates.

SOURCE
"Fundamentals of Credit Analysis," Christopher L. Gootkind, CFA

QUESTION 17

A fixed income security's current price is 101.45. You estimate that the price will rise to 103.28 if interest rates decrease 0.25% and fall to 100.81 if interest rates increase 0.25%. The security's effective duration is *closest* to:

A. 1.22.

B. 4.87.

C. 9.74.

B is correct. The effective duration is defined as: $\dfrac{(PV_-) - (PV_+)}{2 \times (\Delta Curve) \times (PV_0)}$.

Effective duration = (103.28 − 100.81)/(2 × 0.0025 × 101.45) = 4.87.

A is incorrect because it uses a 1% change in rates, not a 0.25% change.

C is incorrect because it does not include the 2 in the denominator of the equation.

SOURCE
"Understanding Fixed-Income Risk and Return," James F. Adams, PhD, CFA, and Donald J. Smith, PhD

QUESTION 18
A perfectly hedged position consisting of a derivative and its underlying asset will *most likely* yield a return that is:

A. smaller than the risk-free rate.

B. equal to the risk-free rate.

C. greater than the risk-free rate.

B is correct. If a risk-free position earns a return that is different from the risk-free return, arbitrage will lead to the elimination of the mispricing.

A is incorrect. If a risk-free position earns a return that is smaller than the risk-free return, arbitrage will lead to the elimination of the mispricing.

C is incorrect. If a risk-free position earns a return that is smaller than the risk-free return, arbitrage will lead to the elimination of the mispricing.

SOURCE
"Basics of Derivative Pricing and Valuation," Don M. Chance, CFA

QUESTION 19
If the price of a commodity futures contract is below the spot price, it is *most likely* that the:

A. roll yield is negative.

B. convenience yield exceeds storage costs.

C. cost of carry exceeds the convenience yield.

B is correct. The convenience yield must exceed the cost of carry to arrive at a futures price below the spot price, since the futures price is approximately equal to spot price (1 + r) + storage cost − convenience yield and the cost of carry is defined as interest cost plus storage cost. As interest

cost is always positive, the convenience yield must also exceed storage costs in order to arrive at a futures price below the spot price.

A is incorrect. Roll yield is defined as the difference between the spot price and the price of the futures contract. If the price of a commodity futures contract is below the spot price, roll yield is positive.

C is incorrect. If the cost of carry exceeds the convenience yield, the futures price is above the spot price.

SOURCE
"Introduction to Alternative Investments," Terri Duhon, George Spentzos, CFA, and Scott D. Stewart, CFA

QUESTION 20
The following information is provided about a stock market index m and security i:

Statistic	Value
Covariance between market return and security return [$Cov(R_i, R_m)$]	0.01104
Correlation coefficient between market return and security return [$\rho_{i,m}$]	0.3
Standard deviation of market return [σ_m]	0.16

The beta of security i, β_i, is *closest to*:

A. 0.23.

B. 0.43.

C. 1.88.

B is correct. $\beta_i = Cov(R_i, R_m) / \sigma_m^2 = 0.01104 / (0.16)^2 = 0.43$.

A is incorrect. This is the value for σ_i. $\sigma_i = Cov(R_i, R_m) / (\sigma_m \times \rho_{i,m})$. $0.01104 / (0.16 \times 0.3) = 0.23$.

C is incorrect. Instead of $Cov(R_i, R_m)$, $\rho_{i,m}$ is used in the formula. $0.3 / (0.16)^2 = 1.88$.

SOURCE
"Portfolio Risk and Return: Part II," Vijay Singal, CFA