

## 2010 Level I Mock Exam: Morning Session

### ANSWERS AND REFERENCES

**Questions 1 through 18 relate to Ethical and Professional Standards.**

1. According to the CFA Institute Code of Ethics and Standards of Professional Conduct, trading on material nonpublic information is *least likely* to be prevented by establishing:
  - A. fire-walls.
  - B. watch lists.
  - C. selective disclosure.

**Answer: C**

CFA Institute Standards  
2010 Modular Level I, Vol. 1, pp. 36-42  
Study Session 1-2-c  
Recommend practices and procedures designed to prevent violations of the Code of Ethics and Standards of Professional Conduct

C is correct as selective disclosure occurs when companies discriminate in making material nonpublic information public. Corporations that disclose information on a limited basis create the potential for insider-trading violations. Standard II (A).

2. William Wong, CFA, is an equity analyst with Hayswick Securities. Based on his fundamental analysis, Wong concludes the stock of a company he follows, Nolvec Inc., is substantially undervalued and will experience a large price increase. He delays revising his recommendation on the stock from “hold” to “buy” to allow his brother to buy shares at a lower price. Wong is *least likely* to have violated the CFA Institute Standards of Professional Conduct related to:
  - A. duty to clients.
  - B. reasonable basis.
  - C. priority of transactions.

**Answer: B**

“Guidance for Standards I-VII”, CFA Institute  
2010 Modular Level I, Vol. 1, pp. 48-50, 80-81, 94-95

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Study Session 1-2-a

Demonstrate a thorough knowledge of the Code of Ethics and Standards of Professional Conduct by applying the Code and Standards to situations involving issues of professional integrity.

B is correct because there is nothing to suggest that Wong does not have a reasonable basis for his conclusion related to Nolvec. Standard V (A).

3. During an onsite company visit, Marsha Ward, CFA, accidentally overheard the Chief Executive Officer (CEO) of Stargazer, Inc. discussing the company's tender offer to purchase Dynamica Enterprises, a retailer of Stargazer products. According to the CFA Institute Standards of Professional Conduct, Ward *most likely* can **not** use the information because:

- A. it relates to a tender offer.
- B. it was overheard and might be considered unreliable.
- C. she does not have a reasonable and adequate basis for taking investment action.

**Answer: A**

"Guidance for Standards I-VII", CFA Institute

2009 Modular Level I, Vol. 1, pp. 36-42

Study Session 1-2-a

Demonstrate a thorough knowledge of the Code of Ethics and Standards of Professional Conduct by applying the Code and Standards to situations involving issues of professional integrity.

A is correct because trading on the information is restricted as it relates to a tender offer; it is clearly material, nonpublic information. Standard II (A).

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4. Ian O’Sullivan, CFA, is the owner and sole employee of two companies, a public relations firm and a financial research firm. The public relations firm entered into a contract with Mallory Enterprises to provide public relations services, with O’Sullivan receiving 40,000 shares of Mallory stock in payment for his services. Over the next 10 days, the public relations firm issued several press releases that discussed Mallory’s excellent growth prospects. O’Sullivan, through his financial research firm, also published a research report recommending Mallory stock as a “buy.” According to the CFA Institute Standards of Professional Conduct, O’Sullivan is *most likely* required to disclose his ownership of Mallory stock in the:
- A. press releases only.
  - B. research report only.
  - C. both the press release and the research report.

**Answer: C**

“Guidance for Standards I-VII”, CFA Institute  
2009 Modular Level I, Vol. 1, pp. 21-26, 89-91  
Study Session 1–2–a

Demonstrate a thorough knowledge of the Code of Ethics and Standards of Professional Conduct by applying the Code and Standards to situations involving issues of professional integrity.

C is correct because members should disclose all matters that reasonably could be expected to impair the member’s objectivity. Standard I (B), Standard VI (A).

5. Jefferson Piedmont, CFA, a portfolio manager for Park Investments, plans to manage the portfolios of several family members in exchange for a percentage of each portfolio’s profits. As his family members have extensive portfolios requiring substantial attention, they have requested that Piedmont provide the services outside his employment with Park. Piedmont notifies his employer in writing of his prospective outside employment. Two weeks later, Piedmont begins managing the family members’ portfolios. By managing these portfolios, did Piedmont violate any CFA Institute Standards of Professional Conduct?
- A. Conflicts of Interest
  - B. Additional Compensation.
  - C. Both Additional Compensation and Conflicts of Interest.

**Answer: C**

“Guidance for Standards I-VII”, CFA Institute  
2009 Modular Level I, Vol. 1, p. 75, 89-91

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Study Session 1–2–a

Demonstrate a thorough knowledge of the Code of Ethics and Standards of Professional Conduct by applying the Code and Standards to situations involving issues of professional integrity.

C is correct because members should disclose all potential conflicts of interest, the substantial time involved in managing family accounts, and when engaging in independent practice for compensation should not render services until receiving written consent from all parties. Standard IV (B), Standard VI (A).

6. The eight major provisions of the Global Investment Performance Standards (GIPS) include all of the following *except*:
- A. Input Data, Calculation Methodology, and Real Estate.
  - B. Fundamentals of Compliance, Composite Construction, and Disclosures.
  - C. Calculation Methodology, Composite Construction, and Alternative Assets.

**Answer: C**

CFA Institute Standards

2010 Modular Level I, Vol. 1, pp. 141-142

Study Session 1-4-d

Characterize the eight major sections of the GIPS standards.

C is correct because Alternative Assets is not among the eight major provisions or sections of the Global Investment Performance Standards which include: Fundamentals of Compliance, Input Data, Calculation Methodology, Composite Construction, Disclosures, Presentation and Reporting, Real Estate, and Private Equity. Standard II, Provisions of The Global Investment Performance Standards.

7. Hui Chen, CFA, develops marketing materials for an investment fund he founded three years ago. The materials show the 3-, 2- and 1-year returns for the fund. He includes a footnote that states in small print “Past performance does not guarantee future returns.” He also includes a separate sheet showing the most recent semi-annual and quarterly returns, which notes they have been neither audited nor verified. Has Chen *most likely* violated any CFA Institute Standards of Professional Conduct?
- A. No.
  - B. Yes, because he included un-audited and unverified results.
  - C. Yes, because he did not adhere to the global investment performance standards.

**Answer: A**

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“Guidance for Standards I-VII”, CFA Institute  
2009 Modular Level I, Vol. 1, pp. 64-65

Study Sessions 1-2-a

Demonstrate a thorough knowledge of the Code of Ethics and Standards of Professional Conduct by applying the Code and Standards to situations involving issues of professional integrity.

A is correct because the Standards require members to make reasonable efforts to make sure performance information is fair, accurate, and complete. The Standards do not require compliance with Global Investment Performance Standards (GIPS), auditing, or verification requirements. Standard III (D)

8. Charlie Mancini, CFA, is the Managing Director for Business Development at SV Financial, (SVF), a large U.S. based mutual fund organization. Mancini has been under pressure recently to increase revenues. In order to secure business from a large hedge fund manager based in Asia, Mancini recently approved flexible terms for the fund’s client agreement. To allow for time zone differences, the agreement permits the hedge fund to trade in all of SVF’s mutual funds six hours after the close of U.S. markets. Did Mancini violate any CFA Institute Standards of Professional Conduct?
- A. No.
  - B. Yes, with regard to Fair Dealing.
  - C. Yes, with regard to Fair Dealing and Material Nonpublic Information.

**Answer: C**

“Guidance for Standards I-VII”, CFA Institute  
2010 Modular Level I, Vol. 1, pp. 45, 53-55

Study Sessions 1-2-a

Demonstrate a thorough knowledge of the Code of Ethics and Standards of Professional Conduct by applying the Code and Standards to situations involving issues of professional integrity.

C is correct because clients should be treated fairly and impartially. Standard III (B). In addition, the flexible trading terms allow the hedge fund manager to enrich themselves and is a violation of Standard II A, concerning trading on material nonpublic information. This is also a conflict of interest, Standard VI (A), Disclosure of Conflicts.

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9. Ron Dunder, CFA, is the CIO for Bling Trust (BT), an investment advisor. Dunder recently assigned one of his portfolio managers, Doug Chetch, to manage several accounts that primarily invest in thinly traded micro-cap stocks. Dunder soon notices that Chetch places many stock trades for these accounts on the last day of the month, towards the market's close. Dunder finds this trading activity unusual and speaks to Chetch who explains that the trading activity was completed at the client's request. Dunder does not investigate further. Six months later regulatory authorities sanction BT for manipulating micro-cap stock prices at month end in order to boost account values. Did Dunder violate any CFA Institute Standards of Professional Conduct?
- A. No.
  - B. Yes, because he failed to reasonably supervise Chetch.
  - C. Yes, because he did not report his findings to regulatory authorities.

**Answer: C**

"Guidance for Standards I-VII", CFA Institute  
2010 Modular Level I, Vol. 1, pp. 76-78  
Study Sessions 1-2-a

Demonstrate a thorough knowledge of the Code of Ethics and Standards of Professional Conduct by applying the Code and Standards to situations involving issues of professional integrity.

B is correct because the CFA Institute Standard on Responsibilities of Supervisors, Standard IV (C), requires members/candidates to take steps to detect and prevent violations of laws, rules and regulations. Dunder failed in his supervisory role when he accepted Chetch's explanation of the unusual trading activity. Dunder should have reviewed the client's goals and objectives, and records, to see if they in fact requested month-end trading. Regardless of the explanation provided by Chetch Dunder should have investigated further.

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10. Ross Nelson, CFA, manages accounts for high net worth clients including his own family's account. He has no beneficial ownership in his family's account. Because Nelson is concerned about the appearance of improper behavior in managing his family's account, when his firm purchases a block of securities, Nelson allocates to his family's account only those shares that remain after his other client accounts have their orders filled. The fee for managing his family's account is based on his firm's normal fee structure. According to the *Standards of Practice Handbook*, Nelson's best course of action with regard to management of his family's account would be to:
- A. treat the account like other client accounts.
  - B. arrange for the account to be transferred to another firm.
  - C. transfer the account to another investment manager in his firm.

**Answer: A**

CFA Institute Standards  
2010 Modular Level I, Vol. 1, pp. 94-98  
Study Session 1-2-a

Demonstrate a thorough knowledge of the Code of Ethics and Standards of Professional Conduct by applying the Code and Standards to situations involving issues of professional integrity.

A is correct as Nelson has breached his duty to his family by treating them differently from other clients. They are entitled to the same treatment as any other client of the firm. Nelson should treat his family's account like any other client account. Standard VI (B) related to Priority of Transactions.

11. Several years ago, Leo Peek, CFA, co-founded an investment club. The club is fully invested but has not actively traded its account for at least a year and does not plan to resume active trading of the account. Peek's employer requires an annual disclosure of employee stock ownership. Peek discloses all of his personal trading accounts, but does not disclose his holdings in the investment club. Peek's actions are *least likely* to be a violation of which of the CFA Institute Standards of Professional Conduct?
- A. Misrepresentation.
  - B. Transaction priority.
  - C. Conflicts of interest.

**Answer: B**

CFA Institute Standards  
2010 Modular Level I, Vol. 1, pp. 29-30, 89-92

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Study Session 1-2-a

Demonstrate a thorough knowledge of the Code of Ethics and Standards of Professional Conduct by applying the Code and Standards to situations involving issues of professional integrity.

B is correct as there is no indication that the investment club is trading ahead of clients. Standard I (C).

12. Madeline Smith, CFA, was recently promoted to senior portfolio manager. In her new position, Smith is required to supervise three portfolio managers. Smith asks for a copy of her firm's written supervisory policies and procedures, but is advised that no such policies are required by regulatory standards in the country where Smith works. According to the *Standards of Practice Handbook*, Smith's *most* appropriate course of action would be to:

- A. require her firm to adopt the CFA Institute Code of Ethics and Standards of Professional Conduct.
- B. require the employees she supervises to adopt the CFA Institute Code of Ethics and Standards of Professional Conduct.
- C. decline to accept supervisory responsibility until her firm adopts procedures to allow her to adequately exercise such responsibility.

**Answer: C**

"Guidance for Standards I-VII", CFA Institute  
2010 Modular Level I, Vol. 1, pp. 76-78

Study Session 1-2-a

Demonstrate a thorough knowledge of the Code of Ethics and Standards of Professional Conduct by applying the Code and Standards to situations involving issues of professional integrity.

C is correct because if a member cannot fulfill supervisory responsibilities because of the absence of a compliance system or because of an inadequate compliance system, the member should decline in writing to accept supervisory responsibility until the firm adopts reasonable procedures to allow the member to adequately exercise such responsibility. Standard IV (C).

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13. Darden Crux, CFA, a portfolio manager at SWIFT Asset Management Ltd., (SWIFT) calls a friend to join him for dinner. The friend, a financial analyst at Cyber Kinetics (CK) declines the invitation and explains she is performing due diligence on Orca Electronics, a company CK is about to acquire. After the phone call, Crux searches the Internet for any news of the acquisition but finds nothing. Upon verifying Orca is on SWIFT's approved stock list, Crux purchases Orca's common stock and call options for selective SWIFT clients. Two weeks later, CK announces its intention to acquire Orca. The next day, Crux sells all of the Orca securities, giving the fund a profit of \$3 million. What action should Crux *most likely* take to avoid violating any CFA Institute Standards of Professional Conduct?
- A. Refuse to trade based on the information.
  - B. Purchase the stock and call options for all clients.
  - C. Trade only after analyzing the stock diligently and thoroughly.

**Answer: A**

CFA Institute Standards  
2010 Modular Level I, Vol. 1, pp. 36-39  
Study Session 1-2-b

Distinguish between conduct that conforms to the Code and Standards and conduct that violates the Code and Standards.

A is correct as members/candidates who possess material nonpublic information that could affect the value of an investment should not act or cause others to act on the information. Crux traded on the material information that Orca is about to be acquired by Cyber Kinetics. The information is non-public because it is not publicly available, which was verified when Crux researched Orca on the Internet and found nothing about the acquisition. Standard II (A).

14. Justin Blake, CFA, a retired portfolio manager owns 20,000 shares of a small public company that he would like to sell. He posts messages on several Internet bulletin boards. The messages read, "This stock is going up once the pending patents are released so now is the time to buy. You would be crazy to sell anything below \$3 in a few months from now. The stock is a buy at anything below \$3. I have done some close research on these guys." According to the *Standards of Practice Handbook*, Blake *most likely* violated the Standard or Standards associated with:
- A. Integrity of Capital Markets and Conflicts of Interest.
  - B. Integrity of Capital Markets, but not Conflicts of Interest.
  - C. Neither Integrity of Capital Markets nor Conflicts of Interest.

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**Answer: A**

“Guidance for Standards I-VII”, CFA Institute

2010 Modular Level I, Vol. 1, pp. 45, 89-92

Study Sessions 1-2-a

Demonstrate a thorough knowledge of the Code of Ethics and Standards of Professional Conduct by applying the Code and Standards to situations involving issues of professional integrity.

A is correct because Blake violated the Standard regarding Conflicts of Interest because he did not disclose his ownership of shares in his message. He also violated the standard relating to Integrity of Capital Markets by engaging in a practice that is likely to artificially inflate trading volume. Standard II (B), Standard VI (A).

15. The Global Investment Performance Standards (GIPS) *least likely* requires:

- A. non-discretionary portfolios to be included in composites.
- B. non fee-paying portfolios to be excluded in the returns of appropriate composites.
- C. composites to be defined according to similar investment objectives and/or strategies.

**Answer: A**

Introduction to the Global Investment Performance Standards (GIPS®) CFA Institute, 2006

2010 Modular Level I, Vol. 1, p. 131

Study Sessions 1-3-b

Explain the construction and purpose of composites in performance reporting.

Composites (Standard IV – Composites) must be defined according to similar investment objectives and/or strategies. Terminated portfolios must be included in the historical returns of appropriate composites while only fee paying portfolios are to be included in composites.

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16. Amanda Covington, CFA, works for McJan Investment Management. McJan employees must receive prior clearance of their personal investments in accordance with McJan's compliance procedures. To obtain prior clearance, McJan employees must provide a written request identifying the security, the quantity of the security to be purchased, and the name of the broker through which the transaction will be made. Pre cleared transactions are approved only for that trading day. As indicated below, Covington received prior clearance.

Security	Quantity	Broker	Prior Clearance
A	100	Easy Trade	Yes
B	150	Easy Trade	Yes

Two days after she received prior clearance, the price of Stock B had decreased so Covington decided to purchase 250 shares of Stock B only. In her decision to purchase 250 shares of Stock B only, did Covington violate any CFA Institute Standards of Professional Conduct?

- A. No.
- B. Yes, relating to diligence and reasonable basis.
- C. Yes, relating to her employer's compliance procedures.

**Answer: C**

“Guidance for Standards I-VII”, CFA Institute  
2010 Modular Level I, Vol. 1, pp. 80–81, 94-98  
Study Session 1–2–a

Demonstrate a thorough knowledge of the Code of Ethics and Standards of Professional Conduct by applying the Code and Standards to situations involving issues of professional integrity.

Prior-clearance processes guard against potential and actual conflicts of interest; members are required to abide by their employer's compliance procedures (Standard VI (B)).

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17. Miranda Grafton, CFA, purchased at varying prices during the trading session a large block of stock on behalf of specific accounts she managed. The stock realized a significant gain in value before the close of the trading day, so Grafton reviewed her purchase prices to determine what prices should be assigned to each specific account. According to the *Standards of Practice Handbook*, Grafton's most appropriate action is to allocate the execution prices:
- A. by giving longer-term clients more favorable prices.
  - B. to all clients within the block trade at the same execution price.
  - C. on a weighted basis according to the size of the clients' accounts.

**Answer: B**

"Guidance for Standards I-VII", CFA Institute  
2010 Modular Level I, Vol. 1, pp. 53-58

Study Session 1-2-a

Demonstrate a thorough knowledge of the Code of Ethics and Standards of Professional Conduct by applying the Code and Standards to situations involving issues of professional integrity.

Members have a responsibility to deal with all clients fairly according to Standard III (B). All clients participating in the block trade should receive the same execution price and be charged the same commission.

18. Jiro Sato, CFA, deputy treasurer for May College, manages the Student Scholarship Trust. Sato issued a Request for Proposal (RFP) for domestic equity managers. Pamela Peters, CFA, a good friend of Sato, introduces him to representatives from Capital Investments, who submitted a proposal. Sato selected Capital as a manager based on the firm's excellent performance record. Shortly after the selection, Peters, who had outstanding performance as an equity manager with another firm, accepted a lucrative job with Capital. Which of the CFA Charterholders violated CFA Institute Standards of Professional Conduct?
- A. Both violated Standards.
  - B. Peters violated Standards.
  - C. Neither violated Standards.

**Answer: C**

"Guidance for Standards I-VII", CFA Institute  
2010 Modular Level I, Vol. 1, pp. 21-26

Study Session 1-2-a

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Demonstrate a thorough knowledge of the Code of Ethics and Standards of Professional Conduct by applying the Code and Standards to situations involving issues of professional integrity.

Members should use reasonable care and judgment to maintain independence and objectivity (Standard I (B)). There is no indication of inappropriate behavior in selection of the equity manager or in the acceptance of employment with that manager; both decisions were based on the excellent performance records of the manager and the member, respectively.

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**Questions 19 through 32 relate to Quantitative Methods**

19. A random variable with a finite number of equally likely outcomes is *best* described by a:
- A. binomial distribution.
  - B. discrete uniform distribution.
  - C. continuous uniform distribution.

**Answer: B**

“Common Probability Distributions,” Richard A. Defusco, CFA, Dennis W. McLeavey, CFA, Jerald E. Pinto, CFA, and David E. Runkle, CFA  
2010 Modular Level I, Vol. 1, pp. 423-424  
Study Session 3-9-e  
Define a discrete uniform random variable and a binomial random variable.

A random variable has a discrete uniform distribution when there are a finite number of equally likely specified outcomes.

20. The bond-equivalent yield for a semi-annual pay bond is *most likely*:
- A. equal to the effective annual yield.
  - B. more than the effective annual yield.
  - C. equal to double the semi-annual yield to maturity.

**Answer: C**

“Discounted Cash Flow Applications,” Richard A. Defusco, CFA, Dennis W. McLeavey, CFA, Jerald E. Pinto, CFA, and David E. Runkle, CFA  
2010 Modular Level I, Vol. 1, pp. 255-257  
Study Session 2-6-e  
Convert among holding period yields, money market yields, effective annual yields, and bond equivalent yields.

The bond equivalent yield for a semi-annual pay bond is equal to double the semiannual yield to maturity (page 257).

21. An analyst gathered the following information about a stock index:

Mean net income for all companies in the index	\$2.4 million
Standard deviation of net income for all companies in the index	\$3.2 million

If the analyst takes a sample of 36 companies from the index, the standard error of the sample mean (in \$) is *closest* to:

- A. \$88,889.
- B. \$400,000.
- C. \$533,333.

**Answer: C**

“Sampling and Estimation,” Richard A. Defusco, CFA, Dennis W. McLeavey, CFA, Jerald E. Pinto, CFA, and David E. Runkle, CFA

2010 Modular Level I, Vol. 1, p. 483

Study Session 3-10-e

Calculate and interpret the standard error of the sample mean.

The standard error of the sample mean is equal to the population standard deviation divided by the square root of the number of observations in the sample:  
 $\$3,200,000 / \sqrt{36} = \$533,333$ .

22. An analyst collects the following set of ten returns from the past.

Year	1	2	3	4	5	6	7	8	9	10
Return (%)	2.2	6.2	8.9	9.3	10.5	11.7	12.3	14.1	15.3	18.4

The geometric mean return (%) is *closest* to:

- A. 9.62.
- B. 10.80.
- C. 10.89.

**Answer: B**

“Statistical Concepts and Market Returns,” Richard A. Defusco, CFA, Dennis W. McLeavey, CFA, Jerald E. Pinto, CFA, and David E. Runkle, CFA

2010 Modular Level I, Vol. 1, pp. 296-299

Study Session 2-7-e

Define, calculate, and interpret measures of central tendency, including the population mean, sample mean, arithmetic mean, weighted average or mean

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(including a portfolio return viewed as a weighted mean), geometric mean, harmonic mean, median, and mode.

The geometric mean return is calculated as the  $n$ th root of the product of  $n$  terms, where the terms are one plus the returns and  $n$  is the number of returns. After taking the  $n$ th root, subtract one (refer to Equation 6, p. 297). In this case,  $([1+2.2%]*[1+6.2%]*\dots[1+15.3%]*[1+18.4%])^{0.10} - 1 = 10.80\%$ .

23. An investor currently has a portfolio valued at \$700,000. The investor's objective is long-term growth, but the investor will need \$30,000 by the end of the year to pay her son's college tuition and another \$10,000 by year-end for her annual vacation. The investor is considering three alternative portfolios:

<i>Portfolio</i>	<i>Expected Return</i>	<i>Standard Deviation of Returns</i>
1	8%	10%
2	10%	13%
3	14%	22%

Using Roy's safety-first criterion, which of the alternative portfolios *most likely* minimizes the probability that the investor's portfolio will have a value lower than \$700,000 at year-end?

- A. Portfolio 1
- B. Portfolio 2
- C. Portfolio 3

**Answer: C**

"Common Probability Distributions," Richard A. Defusco, CFA, Dennis W. McLeavey, CFA, Jerald E. Pinto, CFA, and David E. Runkle, CFA  
2010 Modular Level I, Vol. 1, pp. 445-446  
Study Session 3-9-1

Define shortfall risk, calculate the safety-first ratio, and select an optimal portfolio using Roy's safety-first criterion.

The investor requires a minimum return of \$40,000/\$700,000 or 5.71 percent. Roy's safety-first model uses the excess of each portfolio's expected return over the minimum return and divides that excess by the standard deviation for that portfolio. The highest safety-first ratio is associated with Portfolio 3:  $(14\% - 5.71\%)/22\% = 0.3768$ .

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24. For an investment portfolio, the coefficient of variation of the returns on the portfolio is *best* described as measuring:

- A. risk per unit of mean return.
- B. mean return per unit of risk.
- C. mean excess return per unit of risk.

**Answer: A**

“Statistical Concepts and Market Returns,” Richard A. Defusco, CFA, Dennis W. McLeavey, CFA, Jerald E. Pinto, CFA, and David E. Runkle, CFA

2010 Modular Level I, Vol. 1, pp. 319-320

Study Session 2-7-i

Define, calculate, and interpret the coefficient of variation and the Sharpe ratio.

The coefficient of variation is defined as the standard deviation of the portfolio (a measure of risk) divided by the mean return on the portfolio (i.e., risk per unit of mean return).

25. A fundamental analyst studying 100 potential companies for inclusion in her stock portfolio uses the following three screening criteria:

Screening Criterion	Number of Companies meeting the screen
Market-to-Book Ratio > 4	20
Current Ratio >2	40
Return on Equity >10%	25

Assuming that the screening criteria are independent, the probability (in %) that a given company will meet all three screening criteria is *closest* to:

- A. 2.0.
- B. 8.5.
- C. 20.0.

**Answer: A**

“Probability Concepts,” Richard A. Defusco, CFA, Dennis W. McLeavey, CFA, Jerald E. Pinto, CFA, and David E. Runkle, CFA

2010 Modular Level I, Vol. 1, pp. 371-373

Study Session 2-8-f

Calculate and interpret 1) the joint probability of two events, 2) the probability that at least one of two events will occur, given the probability of each and the

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joint probability of the two events, and 3) a joint probability of any number of independent events.

The joint probability of the three independent criteria is calculated as:  
 $0.2 \times 0.4 \times 0.25 = 0.02$  or 2% of the 100 companies.

26. When using stock return data, a geometric mean return calculation is *most likely* preferred over a arithmetic mean calculation because:
- A. return data can be negative.
  - B. return data can be less than one.
  - C. the geometric mean return is closer in value to the arithmetic mean.

**Answer: A**

“Statistical Concepts and Market Returns,” Richard A. Defusco, CFA, Dennis W. McLeavey, CFA, Jerald E. Pinto, CFA, and David E. Runkle, CFA  
2010 Modular Level I, Vol. 1, pp. 296-299

Study Session 2-7-e

Define, calculate, and interpret measures of central tendency, including the population mean, sample mean, arithmetic mean, weighted average or mean (including a portfolio return viewed as a weighted mean), geometric mean, harmonic mean, median, and mode.

Taking the  $n^{\text{th}}$  root of a negative number when  $n$  is an even number cannot be done (unless one uses imaginary numbers). As returns can be negative, it might not be possible to find their geometric mean. However, returns cannot be lower than -100%. By adding one to each return, as is done in the geometric mean return calculation, we create a series of numbers greater than or equal to zero. The product of such terms must therefore also be positive and the  $n^{\text{th}}$  root can always be found.

27. An analyst collects the following set of past stock returns: -2.3%, -5.1%, 7.6%, 8.2%, 9.1%, and 9.8%. Which of the following measures of return is *most likely* the highest?
- A. Median return
  - B. Geometric mean return
  - C. Arithmetic mean return

**Answer: A**

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“Statistical Concepts and Market Returns,” Richard A. Defusco, CFA, Dennis W. McLeavey, CFA, Jerald E. Pinto, CFA, and David E. Runkle, CFA  
2010 Modular Level I, Vol. 1, pp. 283-299

Study Session 2-7-e

Define, calculate, and interpret measures of central tendency, including the population mean, sample mean, arithmetic mean, weighted average or mean (including a portfolio return viewed as a weighted mean), geometric mean, harmonic mean, median, and mode.

For this data, the median is  $(7.6\% + 8.2\%)/2 = 7.90\%$ . The arithmetic mean is  $(-2.3\% + -5.1\% + 7.6\% + 8.2\% + 9.1\% + 9.8\%)/6 = 4.55\%$ . The geometric mean return is  $([1 + -2.3\%][1 + -5.1\%][1 + 7.6\%][1 + 8.2\%][1 + 9.1\%][1 + 9.8\%])^{1/6} - 1 = 4.38\%$

28. A 182-day U.S. Treasury bill has a face value of \$100,000 and currently sells for \$98,500. Which of the following yields is *most likely* the lowest?
- A. Bank discount yield
  - B. Money market yield
  - C. Holding period yield

**Answer: C**

“Discounted Cash Flow Applications,” Richard A. Defusco, CFA, Dennis W. McLeavey, CFA, Jerald E. Pinto, CFA, and David E. Runkle, CFA  
2010 Modular Level I, Vol. 1, pp. 253-257

Study Session 2-6-d, e

Calculate and interpret the bank discount yield, holding period yield, effective annual yield, and money market yield for a U.S. Treasury bill.

Convert among holding period yields, money market yields, effective annual yields, and bond equivalent yields.

The holding period yield is:  $(100 - 98.5) / 98.5 = 0.015228$ . This is less than the bank discount yield:  $((100 - 98.5) / 100) \times (360 / 182) = 0.02967$ . It is also less than the money market yield:  $(360 \times 0.02967) / (360 - 182 \times 0.02967) = 0.030122$ .

29. If a probability distribution is very similar to a normal distribution, then the kurtosis is *best* described as:
- A. leptokurtic.
  - B. mesokurtic.
  - C. platykurtic.

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**Answer: B**

“Statistical Concepts and Market Returns,” Richard A. Defusco, CFA, Dennis W. McLeavey, CFA, Jerald E. Pinto, CFA, and David E. Runkle, CFA

2010 Modular Level I, Vol. 1, page 330

Study Session 2-7-k

Define and interpret measures of sample skewness and kurtosis.

Normal distributions are mesokurtic. Leptokurtic distributions are more peaked than normal distributions while platykurtic distributions are less peaked than normal distributions.

30. The 95% confidence interval for the sample mean is -4.56 to 3.27. The null hypothesis is that the sample mean is equal to zero. The alternative hypothesis is that the sample mean is not equal to zero (two-tail test). The null hypothesis *most* appropriately should be:
- A. rejected at a 2.5% level of significance.
  - B. rejected at a 5.0% level of significance.
  - C. accepted at a 5.0% level of significance.

**Answer: C**

“Hypothesis Testing,” Richard A. Defusco, CFA, Dennis W. McLeavey, CFA, Jerald E. Pinto, CFA, and David E. Runkle, CFA

2010 Modular Level I, Vol. 1, pp. 523-524

Study Session 3-11-c

Define and interpret a decision rule and the power of a test, and explain the relation between confidence intervals and hypothesis tests.

The 95% confidence interval contains the value zero. Thus, the null hypothesis cannot be rejected.

31. Which of the following is *most likely* to be considered a momentum indicator?
- A. Put-call ratio
  - B. Breadth of market
  - C. Mutual fund cash position

**Answer: B**

“Technical Analysis,” Frank K. Reilly, CFA and Keith Brown, CFA

2010 Modular Level I, Vol. 1, pp. 576-582

Study Session 3-12-c

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List and describe examples of each major category of technical trading rules and indicators.

Breadth of market is a momentum indicator. Put-call ratio and mutual fund cash position are contrary-opinion rules.

32. Compared to a normal distribution, a lognormal distribution is *least likely* to be:
- A. skewed to the left.
  - B. skewed to the right.
  - C. useful in describing the distribution of stock prices.

**Answer: A**

“Statistical Concepts and Market Returns,” Richard A. Defusco, CFA, Dennis W. McLeavey, CFA, Jerald E. Pinto, CFA, and David E. Runkle, CFA  
2010 Modular Level I, Vol. 1, p. 327

“Common Probability Distributions,” Richard A. Defusco, CFA, Dennis W. McLeavey, CFA, Jerald E. Pinto, CFA, and David E. Runkle, CFA  
2010 Modular Level I, Vol. 1, pp. 448-450

Study Session 2-7-j, 3-9-m

Define and interpret skewness, explain the meaning of a positively or negatively skewed return distribution, and describe the relative locations of the mean, median, and mode for a nonsymmetrical distribution.

Explain the relationship between normal and lognormal distributions and why the lognormal distribution is used to model asset prices.

The lognormal distribution is bounded by zero and thus skewed to the right. The lognormal distribution is a good fit to stock prices as stock prices can not fall below zero.

**Questions 33 through 44 relate to Economics**

33. In regard to the relation between output and costs in the short-run, a decline in the marginal cost *most likely* occurs at what level of production?

- A. Low output
- B. High output
- C. Profit-maximizing output

**Answer: A**

“Output and Costs,” Michael Parkin  
2010 Modular Level I, Vol. 2, pp. 141-142

“Perfect Competition,” Michael Parkin  
2010 Modular Level I, Vol. 2, pp. 166

Study Session 4-17-d, 5-18-b

Explain the company’s production function, its properties of diminishing returns and diminishing marginal product of capital, the relation between short-run and long-run costs, and how economies and diseconomies of scale affect long-run costs.

Determine the profit maximizing (loss minimizing) output for a perfectly competitive company and explain marginal cost, marginal revenue, and economic profit and loss.

Marginal cost, in the short-run, decreases at low level of outputs due to economies from greater specialization. However, at higher levels of production, it eventually increases because of the law of diminishing returns.

34. When the supply curve of a factor is perfectly elastic the factor income is *most likely*:

- A. entirely economic rent.
- B. entirely opportunity cost.
- C. part economic rent and part opportunity cost.

**Answer: B**

“Markets for Factors of Production,” Michael Parkin  
2010 Modular Level I, Vol. 2, p. 293

Study Session 5-21-h

Differentiate between economic rent and opportunity costs.

When the supply of a factor is perfectly elastic (the supply curve is horizontal), the entire factor income is opportunity cost (see Figure 14 in the reading).

35. The *most likely* initial (short-run) effect of demand-pull inflation is an increase in:

- A. the price level and a decrease in real GDP.
- B. the price level and an increase in real GDP.
- C. government expenditure followed by a decline in the quantity of money.

**Answer: B**

“U.S. Inflation, Unemployment, and Business Cycles,” Michael Parkin  
2010 Modular Level I, Vol. 2, p. 399

Study Session 6-25-b

Describe and distinguish among the factors resulting in demand-pull and cost-push inflation, and describe the evolution of demand-pull and cost-push inflationary processes.

The initial effect of demand-pull inflation is an increase in the aggregate demand which, in turn, leads to an increase in the real GDP (Figure 2 (a), pp. 399).

36. According to the short-run Phillips curve, when inflation is less than expected, the *most likely* initial effect is that:

- A. real wage rates will fall.
- B. real interest rates will fall.
- C. unemployment will rise above its natural rate.

**Answer: C**

“U.S. Inflation, Unemployment, and Business Cycles,” Michael Parkin  
2010 Modular Level I, Vol. 2, pp. 406-408

Study Session 6-25-e

Explain the impact of inflation on unemployment, and describe the short-run and long-run Phillips curve, including the effect of changes in the natural rate of unemployment.

The difference between actual and expected rates of inflation influences unemployment. When inflation falls below its expected rate, unemployment rises above the natural rate.

37. Which of the following is the *least likely* outcome when a monopoly adopts perfect price discrimination because of the customers' differing demand elasticities?

- A. The monopolist shares the total surplus with consumers.
- B. The price for marginal unit becomes less than the price for other units.
- C. The output increases to the point at which price equals the marginal cost.

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**Answer: A**

“Monopoly,” Michael Parkin  
2010 Modular Level I, Vol. 2, pp. 206-208  
Study Session 5-19-c, d

Explain price discrimination, and why perfect price discrimination is efficient.  
Explain how consumer and producer surplus are redistributed in a monopoly,  
including the occurrence of deadweight loss and rent seeking.

In a monopoly, perfect price discrimination results in the total surplus being kept  
by the producer, the monopolist.

38. Which of the following is *least likely* to resolve or reduce the principal-agent  
problem in organizations?

- A. Ownership
- B. Long-term contracts
- C. Professional management

**Answer: C**

“Organizing Production,” Michael Parkin  
2010 Modular Level I, Vol. 2, pp. 108-109  
Study Session 4-16-d

Explain command systems and incentive systems to organize production, the  
principal-agent problem, and measures a firm uses to reduce the principal-agent  
problem.

Professional management is not a mechanism to resolve the principal-agent  
problem in organizations. In fact, professional managers are agents and create the  
agency problem by pursuing their own goals and imposing costs on the principal.

39. The crowding-out effect suggests that government borrowing to finance higher  
expenditures will *most likely* increase:

- A. private investment.
- B. the real interest rate.
- C. the supply of loanable funds.

**Answer: B**

“Fiscal Policy,” Michael Parkin  
2010 Modular Level I, Vol. 2, pp. 443  
Study Session 6-26-b

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posting to any website, emailing, distributing and/or reprinting the mock exam for any purpose.



Discuss the sources of investment finance and the influence of fiscal policy on capital markets, including the crowding-out effect.

Government borrowing to finance budget deficits leads to a crowding-out effect which would in turn lead to an increase in the real interest rate, a decrease in the supply of loanable funds, and a decrease in private investment.

40. The view that the money wage rates are sticky in the short-run is *least likely* held by which of the following schools of thought?
- A. Classical
  - B. Keynesian
  - C. Monetarist

Answer: A

“Aggregate Supply and Aggregate Demand,” Michael Parkin  
2010 Modular Level I, Vol. 2, pp. 347-349  
Study Session 5-23-d

Compare and contrast the classical, Keynesian, and monetarist schools of macroeconomics.

Classical economists believe the economy is self-regulating and that wage rates will correct quickly to changes in economic conditions. Both Keynesian and monetarist economists believe that wage rates are sticky in the short-run.

41. The Nash equilibrium for a duopoly faced with a “Prisoners’ Dilemma” set of choices is *most likely* to result in:
- A. both firms earn economic profits.
  - B. neither firm earns an economic profit.
  - C. one of the firms earns an economic profit but the other firm does not.

**Answer: B**

“Monopolistic Competition and Oligopoly,” Michael Parkin  
2010 Modular Level I, Vol. 2, pp. 245-247  
Study Session 5-20-e

Describe the oligopoly games including the Prisoners’ Dilemma.

The Nash equilibrium for the duopoly is that both firms cheat on their collusive agreement. Prices and quantities produced are the same as those in perfect competition; neither firm earns an economic profit.

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42. Limited liability is *most likely* to be an advantage of which type of business organization?

- A. Partnership
- B. Corporation
- C. Proprietorship

**Answer: B**

"Organizing Production" Michael Parkin

2010 Modular Level I, Vol. 2, p. 111

Study Session 4-16-e

Describe the different types of business organization and the advantages and disadvantages of each.

Owners have limited liability under the corporate form of business organization. Some partners in a limited partnership enjoy limited liability, but even in a limited partnership at least one general partner is exposed to unlimited liability. Proprietors are exposed to unlimited liability.

43. In a simple economy containing only two goods – apples and shirts – the prices and quantities in the base period and the current period are:

Base Period	Quantity	Price (\$)
Apples	25	1.00
Shirts	5	20.00
Current period	Quantity	Price (\$)
Apples	25	1.25
Shirts	5	20.50

Assuming the base period consumer price index (CPI) = 100, the CPI for the current period is *closest* to:

- A. 103.57.
- B. 107.00.
- C. 113.75.

**Answer: B**

"Monitoring Jobs and the Price Level" Michael Parkin

2010 Modular Level I, Vol. 2, p. 318-319

Study Session 5-22-d

Explain and calculate the consumer price index (CPI) and the inflation rate, describe the relation between the CPI and the inflation rate, and explain the main sources of CPI bias.

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The cost of the CPI basket at base period prices is:  $(25 \times \$1.00) + (5 \times \$20.00) = \$125$ .  
 The cost of the CPI basket at current period prices is:  $(25 \times \$1.25) + (5 \times \$20.50) = \$133.75$ . The CPI for the period is  $(\$133.75 / \$125) \times 100 = 107$ .

44. A consumer good demonstrates the following changes in price and quantity:

	Quantity	Price (\$)
Initial quantity and price	25	15
Quantity and price following a shift in the demand curve	30	20

The elasticity of supply is *closest* to:

- A. 0.60
- B. 0.64
- C. 0.67

**Answer: B**

"Elasticity" Michael Parkin  
 2010 Modular Level I, Vol. 2, pp. 23-25  
 Study Session 4-13-a

Calculate and interpret the elasticities of demand (price elasticity, cross elasticity, and income elasticity) and the elasticity of supply and discuss the factors that influence each measure.

The elasticity of supply is equal to the percentage change in quantity supplied divided by the percentage change in price. It measures the percentage changes relative to the average price and average quantity. Average quantity supplied is  $(30 + 25) / 2 = 27.5$  and the percentage change in quantity supplied is  $5 / 27.5 = 0.181818$ . Average price is  $(20 + 15) / 2 = 17.5$  and the percentage change in price is  $5 / 17.5 = 0.285714$ . The elasticity of supply is  $0.181818 / 0.285714 = 0.636364$ .

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**Questions 45 through 68 relate to Financial Statement Analysis**

45. A firm reports sales of €50,000,000 for the year ended December 31, 2009. Its accounts receivable balances were €6,000,000 at January 1, 2009 and €7,500,000 at December 31, 2009. The company's cash collections from sales (€) for 2009 is *closest* to:
- A. 42,500,000.
  - B. 48,500,000.
  - C. 51,500,000.

**Answer: B**

“Understanding The Cash Flow Statement”, Thomas R. Robinson, CFA, Jan Hendrik van Greuning, CFA, R. Elaine Henry, CFA, and Michael A. Broihahn, CFA

2010 Modular Level 1, Vol. 3, pp. 267-268

Study Session 8-34-e

Demonstrate the steps in the preparation of direct and indirect cash flow statements, including how cash flows can be computed using income statement and balance sheet data.

The cash collections from sales is equal to sales less the change in receivables:  
 $€50,000,000 - (€7,500,000 - €6,000,000) = €48,500,000$ .

46. . The table below shows changes to the number of common shares outstanding for a company during 2009:

1 January	180,000 shares outstanding
1 June	60,000 shares issued
1 August	2 for 1 stock split
31 December	480,000 shares outstanding

To calculate earnings per share for 2009, the company's weighted average number of shares outstanding is *closest* to:

- A. 215,000.
- B. 420,000.
- C. 430,000.

**Answer: C**

“Understanding the Income Statement,” Thomas R. Robinson, CFA, Jan Hendrik van Greuning, CFA, R. Elaine Henry, CFA and Michael A. Broihahn, CFA

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2010 Modular Level 1, Vol. 3, pp. 170-172

Study Session 8-32-g

Describe the components of earnings per share and calculate a company's earnings per share (both basic and diluted earnings per share) for both a simple and complex capital structure.

The weighted average number of shares outstanding is time weighted: 5/12 of the year there were 180,000 shares, and 7/12 of the year there were 240,000 (180,000+60,000) on a pre-split basis; the stock split is treated retroactively to the start of the year.

$$[(180,000 \times 5/12) + (240,000 \times 7/12)] \times 2 = 430,000$$

47. In the statement of cash flows, a company is allowed to classify interest paid:

- A. in either the operating or financing section under IFRS.
- B. in either the operating or financing section under U.S. GAAP.
- C. only in the financing section under both IFRS and U.S. GAAP.

**Answer: A**

“Understanding the Cash Flow Statement,” Thomas R. Robinson, CFA, Jan Hendrik van Greuning, CFA, R. Elaine Henry, CFA and Michael A. Broihahn, CFA

2010 Modular Level 1, Vol. 3, p. 254

“International Standards Convergence”, Thomas R. Robinson, CFA, Jan Hendrik van Greuning, CFA, R. Elaine Henry, CFA, and Michael A. Broihahn, CFA

2010 Modular Level 1, Vol. 3, p. 665

Study Session 8-34-c, 10-43-c

Compare and contrast the key differences in cash flow statements prepared under international financial reporting standards and U.S. generally accepted accounting principles.

Identify and explain the major differences between international and U.S.GAAP accounting standards concerning the treatment of interest and dividends on the statement of cash flows.

US GAAP requires that interest paid be classified as an operating cash flow; IFRS allows interest paid to be classified as either an operating or financing activity.

48. A company entered into a three-year construction project with a total contract price of \$5.3 million and an expected total cost of \$4.4 million. The following table provides cash flow information relating to the contract:

	All figures in \$		
	Year 1	Year 2	Year 3
Costs incurred and paid	600,000	3,000,000	800,000
Amounts billed and payments received	1,200,000	2,800,000	1,300,000

If the company uses the percentage-of-completion method, the amount of revenue (in \$) recognized in Year 2 will be *closest* to:

- A. 2,800,000.
- B. 3,372,727.
- C. 3,616,636.

**Answer: C**

“Understanding The Income Statement”, Thomas R. Robinson, CFA, Jan Hendrik van Greuning, CFA, R. Elaine Henry, CFA, and Michael A. Broihahn, CFA  
2010 Modular Level 1, Vol. 3, pp. 146-150

Study Session 8-32-b

Explain the general principles of revenue recognition and accrual accounting, demonstrate specific revenue recognition applications (including accounting for long-term contracts, installment sales, barter transactions, and gross and net reporting of revenue) and discuss the implications of revenue recognition principles for financial analysis.

The revenue reported is equal to the percentage of the contract that is completed in that period, where percentage completion is based on costs. In Year 2, the percent completed is  $\$3,000,000 / \$4,400,000 = 68.2\%$ , resulting in  $68.2\% \times \$5,300,000 = \$3,616,636$  revenue being recognized.

49. An analyst’s examination of the performance of a company is *least* likely to include an assessment of a company’s:
- A. profitability.
  - B. cash flow generating ability.
  - C. assets relative to its liabilities.

**Answer: C**

“Financial Statement Analysis: An Introduction,” Thomas R. Robinson, CFA, Jan Hendrik van Greuning, CFA, R. Elaine Henry, CFA, and Michael A.

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Broihahn, CFA

2010 Modular Level 1, Vol. 3, pp.7-9

Study Session 7-29-a

Discuss the roles of financial reporting and financial statement analysis.

Assessment of performance includes analysis of profitability and cash flow generating ability. The relationship between assets and liabilities is used to assess a company's financial position, not its performance.

50. Which of the following is a constraint as defined in the International Financial Reporting Standards (IFRS) Framework for the Preparation and Presentation of Financial Statements?
- A. Neutrality
  - B. Timeliness
  - C. Going concern

**Answer: B**

“Financial Reporting Standards,” Thomas R. Robinson, CFA, Jan Hendrik van Greuning, CFA, Karen O’Connor Rubsam, CFA, R. Elaine Henry, CFA, and Michael A. Broihahn, CFA

2010 Modular Level 1, Vol. 3, pp. 106-108

Study Session 7-31-d

Describe the International Financial Reporting Standards (IFRS) framework, including the qualitative characteristics of financial statements, the required reporting elements, and the constraints and assumptions in preparing financial statements.

Timeliness is a constraint in the IFRS Framework. Neutrality is a factor that contributes to reliability and going concern is an assumption of the Framework.

51. A company, with a tax rate of 40%, sold a capital asset with a net book value of \$500,000 for \$570,000 during the year. Which of the following amounts (in \$) will *most likely* be reported on its income statement for the year related to the asset sale?
- A. 42,000
  - B. 70,000
  - C. 570,000

**Answer: B**

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“Understanding The Income Statement”, Thomas R. Robinson, CFA, Jan Hendrik van Greuning, CFA, R. Elaine Henry, CFA, and Michael A. Broihahn, CFA  
2010 Modular Level 1, Vol. 3, pp. 141, 166

Study Session 8-32-a, f

Describe the components of the income statement and construct an income statement using the alternative presentation formats of that statement.

Discuss the financial reporting treatment and analysis of nonrecurring items (including discontinued operations, extraordinary items, and unusual or infrequent items), and changes in accounting standards.

The disposition of a capital asset is reported as a net gain or loss (\$570,000 – \$500,000 = \$70,000) on the income statement before tax affects.

52. Under International Financial Reporting Standards (IFRS) a bank, or other financial institution, would normally use which type of balance sheet format?
- A. Classified
  - B. Liquidity-based
  - C. Market-value based

**Answer: B**

“Understanding the Balance Sheet,” Thomas R. Robinson, CFA, Jan Hendrik van Greuning, CFA, R. Elaine Henry, CFA and Michael A. Broihahn, CFA  
2010 Modular Level 1, Vol. 3, pp. 201-203

Study Session 8-33-b

Describe the various formats of balance sheet presentation.

Under IAS No. 1 liquidity-based presentation is recommended when it provides information that is more relevant and reliable than the current/noncurrent format, such as in the case of banks and financial institutions.

53. A company issued shares to acquire a large tract of undeveloped land for future development. The *most likely* recording of this transaction in the cash flow statement is as a(n):
- A. disclosure in a note or supplementary schedule.
  - B. outflow from investing activities, and an inflow from financing activities.
  - C. outflow from operating activities, and an inflow from financing activities.

**Answer: A**

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“Understanding the Cash Flow Statement,” Thomas R. Robinson, CFA, Jan Hendrik van Greuning, CFA, R. Elaine Henry, CFA and Michael A. Broihahn, CFA

2010 Modular Level 1, Vol. 3, p. 254

Study Session 8-34-b

Describe how noncash investing and financing activities are reported.

Non-cash transactions are not reported in the cash flow statement but if they are significant they are reported in a note or supplementary schedule.

54. The following information is available for a company:

<b>December 31, 2009:</b>		
	Total Assets	\$100,000
	Net income for the year	\$4,000
	Dividends paid	\$0
	Assets are equally financed with debt and equity	
	50% of the equity comes from contributed capital	
<b>December 31, 2010:</b>		
	Total Assets	\$92,000
	Net loss for the year	\$3,000
	No new debt or equity issued or repurchased	

In 2010, the company *most likely*:

- A. paid a dividend of \$1,000
- B. paid a dividend of \$5,000
- C. did not pay a dividend because they incurred a loss.

**Answer: B**

“Financial Reporting Mechanics,” Thomas R. Robinson, CFA, Jan Hendrik van Greuning, CFA, Karen O’Connor Rubsam, CFA, R. Elaine Henry, CFA, and Michael A. Broihahn, CFA

2010 Modular Level 1, Vol.3, pp. 43

Study Session: 7-30-b, c

Explain the accounting equation in its basic and expanded forms.

Explain the process of recording business transactions using an accounting system based on the accounting equations.

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	<b>2009 (\$)</b>	<b>2010 (\$)</b>
Total Assets (given)	100,000	92,000
Total Debt (50% in 2009, no change in 2010)	<u>50,000</u>	<u>50,000</u>
Total Equity (Total assets – total debt)	50,000	42,000
<b>Equity Components</b>		
Contributed Capital (50% of Equity in 2009, no change in 2010)	<u>25,000</u>	<u>25,000</u>
Retained Earnings (solved for) (Total Equity – Contributed Capital)	25,000	17,000
Retained earnings = opening RE + net income – dividends 2010 Retained Earnings = 17,000 = 25,000 - 3,000 - Dividends Dividends = 5,000		

55. A company reported net income of \$400,000 for the year. At the end of the year, the company had an unrealized gain of \$50,000 on its available-for-sale securities, an unrealized gain of \$40,000 on held-to-maturity securities and an unrealized loss of \$100,000 on its portfolio of held-for-trading securities. The company's comprehensive income (in \$) for the year is *closest* to:
- A. 350,000.  
B. 390,000.  
C. 450,000.

**Answer: C**

“Understanding the Income Statement”, Thomas R. Robinson, CFA, Jan Hendrik van Greuning, CFA, R. Elaine Henry, CFA, and Michael A. Broihahn, CFA  
2010 Modular Level 1, Vol.3, pp.183-186

“Understanding the Balance Sheet”, Thomas R. Robinson, CFA, Jan Hendrik van Greuning, CFA, R. Elaine Henry, CFA, and Michael A. Broihahn, CFA  
2010 Modular Level 1, Vol.3, pp.223-228

Study Session: 8-32-i, j, 8-33-f, g

Describe and calculate comprehensive income;

State the accounting classification for items that are excluded from the income statement but affect owners' equity, and list the major types of items receiving that treatment.

Demonstrate the appropriate classifications and related accounting treatments for marketable and nonmarketable financial instruments held as assets or owed by the company as liabilities;

List and explain the components of owners' equity;

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Comprehensive Income = Net Income + Other Comprehensive Income = NI + OCI

Other Comprehensive Income will include unrealized gains or losses on available for sale securities. Net Income includes unrealized gains or losses in trading securities, while securities classified as held to maturity are maintained at historical cost and therefore the unrealized gains won't impact comprehensive income.

OCI = \$50,000; Comprehensive Income = NI + OCI = \$400,000 + \$50,000 = \$450,000

56. The table below contains selected data from the common-size balance sheets for three different industries: utilities, financials and consumer discretionary products.

	% of Total Assets		
	Industry 1	Industry 2	Industry 3
Inventories	6.9	2.6	19.4
PPE	1.9	57.5	25.4
LT Debt	18.2	31.9	19.1
Total Equity	19.5	23.2	42.3
LT = Long Term; PPE = Property, plant and equipment			

Which of the following statements is *most* accurate?

- A. Industry 1 is the utility industry and Industry 2 is the financial industry.
- B. Industry 2 is the utility industry and Industry 3 is the consumer discretionary products industry.
- C. Industry 1 is the consumer discretionary products industry and Industry 3 is the financial industry.

**Answer: B**

“Financial Analysis Techniques,” Thomas R. Robinson, CFA, Jan Hendrik van Greuning, CFA, R. Elaine Henry, CFA, and Michael A. Broihahn, CFA  
2010 Modular Level 1, Vol.3, pp.308-316

“Understanding the Balance Sheet,” Thomas R. Robinson, CFA, Jan Hendrik van Greuning, CFA, R. Elaine Henry, CFA, and Michael A. Broihahn, CFA  
2010 Modular Level 1, Vol.3, pp.234-237

Study Session: 8-33-h, 8-35-a

Interpret balance sheets and statements of changes in equity.

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Evaluate and compare companies using ratio analysis, common-size financial statements, and charts in financial analysis.

The utility industry [2] has a large percentage of PPE and long term debt and low inventories; the consumer discretionary products industry [3] would have high inventories.

57. Due to global oversupply in the micro-chip industry a company wrote down its 2009 inventory by €4.0 million from €12.0 million. The following year, due to a change in competitive forces in the industry the market price of these chips rose sharply to 10% above their original 2009 value. If the company prepares its financial statements in accordance with International Financial Reporting Standards (IFRS), its 2010 inventory (in €-millions) will *most likely* be reported as:
- A. 8.0.
  - B. 12.0.
  - C. 13.2.

**Answer: B**

“Inventories,” Elbie Antonites, CFA and Michael Broihahn, CFA  
2010 Modular Level 1, Vol. 3, pp. 380-381

“International Standards Convergence,” Thomas R. Robinson, CFA, Jan Hendrik van Greuning, CFA, R. Elaine Henry, CFA and Michael A. Broihahn, CFA  
2010 Modular Level 1, Vol. 3, pp. 653-654  
Study Session 9-36-b, 10-43-a

Discuss how inventories are reported in the financial statements and how the lower of cost or net realizable value is used and applied.

Identify and explain the major international accounting standards for each asset and liability category on the balance sheet and the key differences from U.S. generally accepted accounting principles (GAAP).

Although IFRS does require write-downs, it also allows revaluations, but not to exceed the original value, i.e., 12. The exception to this, where gains are allowed, is in producers of agricultural, forest and resource products.

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58. An analyst calculates the following ratios for a firm:

Sales/Total Assets	Net Profit Margin (%)	Return on Total Assets (%)	Equity/ Total Assets
2.8	4	11.2	0.625

The return on equity (in %) for this firm is *closest* to:

- A. 6.4.
- B. 7.0.
- C. 17.9.

**Answer: C**

“Financial Analysis Techniques,” Thomas R. Robinson, CFA, Jan Hendrik van Greuning, CFA, R. Elaine Henry, CFA and Michael A. Broihahn, CFA

2010 Modular Level 1, Vol. 3, pp. 342-344

“Financial Statement Analysis”, Pamela P. Peterson, CFA

2010 Modular Level 1, Vol. 4, pp.142-146

Study Session 8-35-f, 11-47

Demonstrate the application of and interpret changes in the component parts of the Du Pont analysis (the decomposition of return on equity).

$ROE = \text{Net Profit Margin} \times \text{Sales/Total Assets} \times \text{Total Assets/Equity}$

$= 4.0 \times 2.8 \times 1/0.625 = 17.9\%$ .

Alternatively,  $ROE = \text{Return on Total Assets} \times \text{Total Assets/Equity} = 11.2 \times 1/0.625 = 17.9\%$

59. A capital lease requires annual lease payments of \$2,000 at the start of each year. Fair value of the leased equipment at inception of the lease is \$10,000 and the implicit interest rate is 12 percent. If the present value of the lease payments equals the fair value of the equipment at the inception of the lease, the interest expense (in \$) recorded by the lessee in the second year of the lease is *closest* to:

- A. 960.
- B. 1,104.
- C. 1,200.

**Answer: A**

“Long-term Liabilities and Leases,” Elizabeth A. Gordon and R. Elaine Henry, CFA

2010 Modular Level 1, Vol. 3, pp. 537-539

Study Session 9-39-g

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Determine the effects of finance and operating leases on the financial statements and ratios of the lessees and lessors.

Year	Starting Balance	Interest Expense @ 12%	Lease Payment	Principal Reduction	Ending Balance
1	10,000	0	2,000	2,000	8,000
2	8,000	960			

60. Two software companies that report their financial statements under U.S. GAAP (generally accepted accounting principles) are identical *except* as to how soon they judge a project to be technologically feasible. One firm does so very early in the development cycle while the other usually waits until just before the project is released to manufacturing. Compared to the company that judges technological feasibility early, the one that waits until closer to manufacturing will *most likely* report lower:
- A. financial leverage.
  - B. total asset turnover.
  - C. cash flow from operations.

**Answer: C**

“Long-Lived Assets,” R. Elaine Henry, CFA and Elizabeth Gordon  
2010 Modular Level 1, Vol. 3, pp. 418-422, 427-431  
Study Session 9-37-b, c

Compute and describe the effects of capitalizing versus expensing on net income, shareholders’ equity, cash flow from operations, and financial ratios including the effect on the interest coverage ratio of capitalizing interest costs.

Explain the circumstances in which software development costs and research and development costs are capitalized.

U.S. GAAP requires that a company expense costs related to software development until product feasibility is established and capitalize any costs thereafter. The company that capitalizes these software development costs reports the expenditures in the investing activities section of the statement of cash flows; the company that expenses software development costs reports the expenditures in the cash flow from operations.

61. During the past year, a company's production facility was operating at 75% of capacity. The firm's costs were as follows:

	\$ millions
Fixed production overhead costs	3
Raw materials costs	6
Labor costs	4
Freight-in costs for raw materials	1
Warehousing costs for finished goods	2

The firm ended the year with no remaining work-in-process inventory. The total capitalized inventory cost (in \$ millions) for the year is *closest* to:

- A. 13.25.
- B. 15.25.
- C. 16.00.

**Answer: A**

“Inventories,” Elbie Antonites, CFA and Michael Broihahn, CFA

2010 Modular Level 1, Vol. 3, pp. 379-380

Study Session 9-36-a

Explain IFRS and U.S. GAAP rules for determining inventory cost including which costs are capitalized and methods of allocating costs between costs of goods sold and inventory.

	\$ millions
Fixed Production Costs: 75% of capacity: $75\% \times \$3$	2.25
Raw materials	6.00
Labor Costs	4.00
Freight In	1.00
Total Capitalized Inventory Cost	13.25

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62. A company prepares its financial statements in accordance with U.S. GAAP (generally accepted accounting principles). It expected to be the sole supplier for a state-wide school milk program and had production facilities valued at \$28.4 million. Recently several other companies were also granted milk-supply contracts throughout the state and the company now estimates that it will only be able to generate cash flows of \$3 million per year for the next 7 years with its facilities. The firm has a cost of capital of 10%.

The impairment loss (in \$-millions) on the production facilities will *most* likely be reported in the company's financial statements as a:

- A. 13.8 reduction in operating cash flows. .
- B. 13.8 impairment loss in the income statement
- C. 7.4 reduction in the balance sheet carrying amount.

**Answer: B**

"Long-Lived Assets," R. Elaine Henry, CFA and Elizabeth A. Gordon  
2010 Modular Level 1, Vol. 3, pp. 454-457  
Study Session 9-37-i

Define impairment of long-lived tangible and intangible assets and explain what effect such impairment has on a company's financial statements and ratios.

The company will report an impairment loss in the income statement:

The facilities fail the recoverability test, the net book value cannot be recovered from undiscounted cash flows:  $7 \text{ yrs} \times \$3 = \$21 < \$28.4$ . Therefore, the asset is impaired. The asset should be written down to its fair value.

Fair Value: PV of future benefits:  $(N=7; i=10; PMT=3)$ :  $PV = 14.6$

Impairment Loss: Carrying Value – Fair Value:  $28.4 - 14.6 = 13.8$  to be reported on the income statement

63. Which of the following events will *most likely* result in a decrease in a valuation allowance for a deferred tax asset under U.S. GAAP (generally accepted accounting principles)? A(n):
- A. reduction in tax rates.
  - B. decrease in interest rates.
  - C. increase in the carry forward periods available under the tax law.

**Answer: C**

"Income Taxes," Elbie Antonites, CFA and Michael Broihahn, CFA  
2010 Modular Level 1, Vol. 3, pp. 490-491, 500-503  
Study Session 9-38-g

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Discuss the valuation allowance for deferred tax assets - when it is required and what impact it has on financial statements.

Under U.S. GAAP, deferred tax assets must be assessed at each balance sheet date. If there is any doubt whether the deferral will be recovered, the carrying amount should be reduced to the expected recoverable amount. The asset is reduced by increasing the valuation allowance. Should circumstances change, so that it is more probable that the deferred tax benefits will be recovered, the deferred asset account will be increased (and the valuation allowance decreased). An increase in the carry forward period for tax losses extends the possibility that benefits will be realized from the deferred tax asset and would likely result in a decrease in the valuation allowance and an increase in the deferred tax asset.

64. A company presents its financial statements according to U.S. GAAP (generally accepted accounting principles) and has just issued \$5 million of mandatory redeemable preferred shares with a par value of \$100 per share and a 7% dividend. The issue matures in 5 years. Which of the following statements is *least likely* correct? At the time of the issue, the company's:

- A. debt-to-total capital ratio will improve
- B. interest coverage ratio will deteriorate.
- C. preferred shareholders will rank below debt holders should the company file for bankruptcy.

**Answer: A**

"Understanding the Balance Sheet," Thomas R. Robinson, CFA, Jan Hendrik van Greuning, CFA, R. Elaine Henry, CFA and Michael A. Broihahn, CFA

2010 Modular Level 1 Vol. 3 p.226

"Long-term Liabilities and Leases," Elizabeth Gordon and R. Elaine Henry, CFA  
2010 Modular Level 1 Vol. 3 pp. 532-535

Study Session 8-33-g, 9-39-c,

List and explain the components of owners' equity.

Describe the presentation of, and disclosures relating to, financing liabilities.

SFAS 150 require that issuers report as liabilities any financial instruments that will require repayment of principal in the future. Mandatory redeemable preferred shares must be reported as debt; dividends on such stock must be reported as interest expense (consistent with the view that the preferred stock is debt) which will lower the interest coverage ratio..

In the Debt/(Debt + Equity) ratio, the Debt will increase making the debt/total capital increase, (the numerator will increase more than the denominator), thus the ratio will increase (deteriorate), not decrease (improve).

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65. A pharmaceutical company has been very successful for the past several years, increasing its sales many-fold over that of its competition. It has been able to meet or beat analysts' optimistic quarterly earnings estimates and consistently registers very high sales towards the end of each quarter. Most of the company's sales are to two of its major wholesalers. The firm covers the carrying costs for these two wholesalers and guarantees them a return on investment until the wholesalers sell the products.

Which of the three risk factors related to fraudulent financial reporting would *best* explain the behavior of this company?

- A. Opportunities
- B. Incentives/Pressures
- C. Attitudes/Rationalizations

**Answer: B**

"Understanding the Income Statement," Thomas R. Robinson, CFA, Jan Hendrik van Greuning, CFA, R. Elaine Henry, CFA and Michael A. Broihahn, CFA  
2010 Modular Level 1, Vol. 3, pp. 144-146

"Financial Reporting Quality: Red Flags and Accounting Warning Signs,"

Thomas R. Robinson, CFA and Paul Munter

2010 Modular Level 1, Vol. 3, pp. 574-580

Study Session 8-32-b, 10-40-e

Explain the general principles of revenue recognition and accrual accounting, demonstrate specific revenue recognition applications (including accounting for long-term contracts, installment sales, barter transactions, and gross and net reporting of revenue), and discuss the implications of revenue recognition principles for financial analysis.

Describe common accounting warning signs and methods of detecting each.

The company is recognizing revenue for sales on shipment while the risks and rewards of ownership have not yet been transferred to the wholesalers. The motivation behind the activity is most likely the pressure to meet the expectations of investment analysts to meet ever increasing sales growth forecasts.

66. Which of the following is *most likely* a benefit of debt covenants for the borrower?

- A. Reduction in the cost of borrowing.
- B. Limitations on the company's ability to pay dividends.
- C. Restrictions on how the borrowed money may be invested.

**Answer: A**

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“Long-term Liabilities and Leases,” Elizabeth A. Gordon and R. Elaine Henry, CFA

2010 Modular Level 1, Vol.3, pp. 524-525

Study Session: 9-39-b

Explain the role of debt covenants in protecting creditors by restricting a company’s ability to invest, pay dividends, or make other operating and strategic decisions.

The reduction in the cost of borrowing is a benefit of covenants to the borrower.

67. Under U.S. GAAP what is the *most likely* effect of the reversal of a valuation allowance related to a deferred tax asset on net income?

- A. No effect
- B. A decrease
- C. An increase

**Answer: C**

“Income Taxes,” Elbie Antonites, CFA and Michael A. Broihahn, CFA

2010 Modular Level 1, Vol.3, p. 491

Study Session: 9-38-g

Discuss the valuation allowance for deferred tax assets – when it is required and what impact it has on financial statements.

The reversal of a valuation allowance increases the deferred tax assets and decreases the deferred tax expense, increasing net income.

68. Which of the following accounting warning signs was evident in the Enron accounting scandal?

- A. Recording revenue from contingent sales.
- B. Accelerating sales from later periods into the present quarter.
- C. Classifying financing cash flows as operating cash flows to increase operating cash flows.

**Answer: C**

“Financial Reporting Quality: Red Flags and Accounting Warning Signs,”

Thomas R. Robinson, CFA and Paul Munter

2010 Modular Level 1, Vol.3, p. 580, 585

Study Session: 10-40-f, g

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Describe the accounting warning signs related to the Enron accounting scandal.  
Describe the accounting warning signs related to the Sunbeam accounting scandal.

Enron classified financing cash flows as operating cash flows.

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**Questions 69 through 78 relate to Corporate Finance**

69. A company that sells ice cream is evaluating an expansion of its production facilities to also produce frozen yogurt. A marketing study has concluded that producing frozen yogurt would increase the company's ice cream sales because of an increase in brand awareness. What impact will the cash flows from the expected increase in ice cream sales *most likely* have on the NPV of the yogurt project?
- A. Increase
  - B. Decrease
  - C. No effect

**Answer: A**

"Capital Budgeting," John D. Stowe, CFA and Jacques R. Gagné, CFA  
2010 Modular Level I, Vol. 4, p. 9

Study Session 11-44-b

Discuss the basic principles of capital budgeting, including the choice of the proper cash flows.

The increase in ice cream sales represents a positive externality that will increase the NPV of the project and should be included in the NPV analysis.

70. The following information is available for a company and the industry in which it competes:

	<b>Company</b>	<b>Industry</b>
Accounts receivable turnover	5.6 times	6.5 times
Inventory turnover	4.2 times	4.0 times
Number of days of payables	28 days	36 days

Relative to the industry, the company's operating cycle:

- A. and cash conversion cycle are both longer.
- B. is longer, but its cash conversion cycle is shorter.
- C. is shorter, but its cash conversion cycle is longer.

**Answer: A**

"Financial Analysis Techniques," Thomas R. Robinson, CFA, Jan Hendrik van Greuning, CFA, R. Elaine Henry, CFA, and Michael A. Broihahn, CFA  
2010 Modular Level 1, Vol. 3, pp. 329-331

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“Working Capital Management,” Edgar A. Norton, Jr., CFA, Kenneth L. Parkinson, and

Pamela P. Peterson, CFA

2010 Modular Level I, Vol. 4, pp. 95-101

Study Session 8-35-d, 11-46-b, c

Calculate, classify, and interpret activity, liquidity, solvency, profitability and valuation ratios.

Compare a company’s liquidity measures with those of peer companies.

Evaluate overall working capital effectiveness of a company, using the operating and cash conversion cycles, and compare its effectiveness with other peer companies.

The operating cycle = number of days of inventory + number of days of receivables.

The cash conversion cycle = operating cycle – number of days of payables.

	Company	Industry
Number of days receivables	$365/6 = 65$ days	$365/6.5 = 56$ days
Number of days inventory	$365/4.2 = 87$ days	$365/4.2 = 87$ days
Operating cycles	$65 + 87 = 152$ Longer	$56 + 91 = 147$
Cash conversion cycle	$152 - 28 = 124$ Longer	$147 - 36 = 111$

Therefore, the operating cycle and cash conversion cycle are both longer for the company.

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71. An analyst gathered the following information about a company that expects to fund its capital budget without issuing any additional shares of common stock:

Source of capital	Capital structure proportion	Marginal after-tax cost
Long-term debt	50%	6%
Preferred stock	10%	10%
Common equity	40%	15%

Net present values of three independent projects:	
Warehouse project	\$426
Equipment project	\$0
Product line project	-\$185

If no significant size or timing differences exist among the projects and the projects all have the same risk as the company, which project has an internal rate of return that exceeds 10 percent?

- A. All three projects
- B. The warehouse project only
- C. The warehouse project and the equipment project

**Answer: B**

“Capital Budgeting,” John D. Stowe, CFA and Jacques R. Gagné, CFA  
2010 Modular Level I, Vol. 4 pp. 10-13

“Cost of Capital,” Yves Courtois, CFA, Gene C. Lai, and Pamela P. Peterson, CFA

2010 Modular Level I, Vol. 4, pp. 40-41

Study Session 11-44-d, 11-45-a

Calculate and interpret the results using each of the following methods to evaluate a single capital project: net present value (NPV), internal rate of return (IRR), payback period, discounted payback period, and profitability index (PI).

Calculate and interpret the weighted average cost of capital (WACC) of a company.

The WACC of the company is calculated as  $0.5(6\%) + 0.1(10\%) + 0.4(15\%) = 10\%$ . To have a positive NPV, a project must have an IRR greater than the WACC used to calculate the NPV. Only the warehouse project has a NPV greater than \$0 (at the company’s WACC of 10%), therefore only the warehouse project has an IRR that exceeds 10%.

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72. An analyst is developing net present value (NPV) profiles for two investment projects. The only difference between the two projects is that Project 1 is expected to receive larger cash flows early in the life of the project, while Project 2 is expected to receive larger cash flows late in the life of the project. The sensitivities of the projects' NPVs to changes in the discount rate is *best* described as:
- A. equal for the two projects.
  - B. lower for Project 1 than for Project 2.
  - C. greater for Project 1 than for Project 2.

**Answer: B**

“Capital Budgeting,” John D. Stowe, CFA and Jacques R. Gagné, CFA  
2010 Modular Level I, Vol. 4, pp. 19-21

Study Session 11-44- e

Explain the NPV profile, compare and contrast the NPV and IRR methods when evaluating independent and mutually-exclusive projects, and describe the problems associated with each of the evaluation methods.

A delay in the receipt of cash flows (as in Project 2) will make a project's net present value more sensitive to changes in the discount rate.

73. A company wants to determine the cost of equity to use in calculating its weighted average cost of capital. The controller has gathered the following information:

Rate of return on 3-month Treasury bills	3.0%
Rate of return on 10-year Treasury bonds	3.5%
Market equity risk premium	6.0%
The company's estimated beta	1.6
The company's after-tax cost of debt	8.0%
Risk premium of equity over debt	4.0%
Corporate tax rate	35%

Using the capital asset pricing model (CAPM) approach, the cost of equity (%) for the company is *closest* to:

- A. 7.5.
- B. 12.6.
- C. 13.1.

**Answer: C**

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“Cost of Capital,” Yves Courtois, CFA, Gene C. Lai, and Pamela P. Peterson, CFA

2010 Modular Level I, Vol. 4, p. 52

Study Session 11-45-h

Calculate and interpret the cost of equity capital using the capital asset pricing model approach, the dividend discount model approach, and the bond-yield-plus risk-premium approach.

The cost of equity using the CAPM = Risk Free Rate + Beta x Market Equity Risk Premium =  $3.5 + 1.6 \times (6.0) = 13.1\%$ .

74. Which of the following is the *most* appropriate technique for forecasting cash flow for the short term?

- A. Statistical models
- B. Simple projections
- C. Projection models and averages

**Answer: B**

“Working Capital Management,” Edgar A. Norton, Jr., CFA, Kenneth L. Parkinson, and

Pamela P. Peterson, CFA

2010 Modular Level I, Vol. 4, p. 102-104

Study Session 11-46-d

Identify and evaluate the necessary tools to use in managing a company’s net daily cash position.

Simple projections are used to forecast short-term needs. Projection models and averages are normally used to forecast medium term cash flow needs. Statistical models are normally used to forecast long term needs, not short term cash flow needs.

75. Given two mutually exclusive projects with normal cash flows, the points at which the net present value profiles intersect the horizontal axis are *most likely* to be the:

- A. crossover rate for the projects.
- B. internal rates of return of the projects.
- C. the company’s weighted average cost of capital (WACC).

**Answer: B**

“Capital Budgeting,” John D. Stowe, CFA and Jacques R Gagné, CFA

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2010 Modular Level I, Vol. 4, pp. 17-23

Study Session 11-44-e

Explain the NPV profile, compare and contrast the NPV and IRR methods when evaluating independent and mutually-exclusive projects, and describe the problems associated with each of the evaluation methods.

For a project with normal cash flows, the NPV profile intersects the horizontal axis at the point where the discount rate is equal to the IRR. The crossover rate is the discount rate at which the NPVs of the projects are equal. While it is possible that the crossover rate is equal to each project's IRR, it is not a likely event. The IRR for both projects being the firm's WACC will only arise when both projects have a NPV=0.

76. An investment fund owns 8 percent of the outstanding voting shares of a public company. There are several larger voting blocks of shares such that the investment fund is not assured of being able to elect representation on the board of directors. Which type of shareholder voting right would be *most* beneficial in allowing the investment fund to ensure their interests are represented on the board?

- A. Proxy
- B. Cumulative
- C. Confidential

**Answer: B**

"The Corporate Governance of Listed Companies: A Manual for Investors," 2010 Modular Level I, Vol. 4, pp. 193-195

Study Session 11-48-g

Evaluate, from a shareholder's perspective, company policies related to voting rules, shareowner sponsored proposals, common stock classes and takeover defenses.

Cumulative voting enhances the likelihood that minority interests are represented on the board.

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77. Information about the 2009 actual results for a company and its projected sales, cost of goods sold and assets for 2010 are presented below:

	All figures in £-000s	
	2009 actual	2010 projected
Sales	9,000	9,900
Cost of goods sold	3,000	3,450
Total assets	4,500	4,725
Current assets	1,800	
Current liabilities	1,200	

Based on the projected sales increase, the best estimate of 2010 projected current assets (in £- 000s) is *closest* to:

- A. 1,890.
- B. 1,980.
- C. 2,070.

**Answer: B**

“Financial Statement Analysis,” Pamela P. Peterson, CFA  
2010 Modular Level I, Vol. 4, pp. 153-159  
Study Session 11-47

The candidate should be able to demonstrate the use of pro forma income and balance sheet statements.

Current assets are sales driven and hence would be expected to increase by 10%, the same amount as sales. The increase in sales is  $(9,900,000 - 9,000,000)/9,000,000 = 10\%$ . Therefore, projected current assets are  $1.10 \times 1,800,000 = 1,980,000$ .

78. Assuming trade credit terms of 2/10 net 40, paying the supplier on the 30<sup>th</sup> day creates an annualized cost of trade credit (%) *closest* to:

- A. 27.9.
- B. 44.6.
- C. 109.0.

**Answer: B**

“Working Capital Management,” Edgar A. Norton, Jr., CFA, Kenneth L. Parkinson, and Pamela P. Peterson, CFA  
2010 Modular Level I, Vol.4, pp. 126-127  
Study Session 11-46-g

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Evaluate the choices of short-term funding available to a company and recommend a financing method.

$$\begin{aligned}\text{Cost of trade credit} &= \{ [ 1 + \text{Discount}/(1 - \text{Discount}) ]^{(365/\text{Days beyond discount period})} \\ &\quad \} - 1 \\ &= \{ 1 + (0.02 \div (1 - 0.02)) \}^{(365 \div (30 - 10))} - 1 = 44.6\%\end{aligned}$$

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**Questions 79 through 90 relate to Equity Investments**

79. In an efficient market, fundamental analysis *most likely* requires that the analyst must:
- A. extrapolate historical data to estimate future values and take investment decisions.
  - B. do a superior job of estimating the relevant variables and predict earnings surprises.
  - C. use trading rules for detecting the price movements that lead to new equilibrium prices.

**Answer: B**

“Efficient Capital Markets,” Frank K. Reilly, CFA and Keith C. Brown, CFA  
2010 Modular Level I, Vol. 5, pp. 91-93

Study Session 13-54-c

Explain the implications of stock market efficiency for technical analysis, fundamental analysis, the portfolio management process, the role of the portfolio manager, and the rationale for investing in index funds.

To take advantage of the long-run price movements in an efficient capital market the analyst must do a superior job of estimating the relevant variables and predict earnings surprises.

80. A large manufacturing company is in a competitive industry. It has above-average investment opportunities and its return on investments has been above the required rate of return. The firm retains a large portion of earnings to fund its superior investment projects. The company is *best* characterized as a:
- A. growth company.
  - B. cyclical company.
  - C. speculative company.

**Answer: A**

“Company Analysis and Stock Valuation,” Frank K. Reilly, CFA and Keith C. Brown, CFA

2010 Modular Level I, Vol. 5, pp. 176-177

Study Session 14-58-a

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Differentiate between 1) a growth company and a growth stock, 2) a defensive company and a defensive stock, 3) a cyclical company and a cyclical stock, 4) a speculative company and a speculative stock and 5) a value stock and a growth stock.

Growth companies are characterized by above-average investment opportunities that yield rates of return greater than the firm's required rate of return. They also retain a large portion of their earnings to fund the superior investment projects and hence they tend to have low dividend payout ratios.

81. A security market with price continuity is *most* accurately characterized as a market in which:
- A. assets can be bought or sold quickly with minimal transaction costs.
  - B. prices change rapidly from one transaction to the next in response to new information.
  - C. prices do not change much from one transaction to the next in the absence of new information.

**Answer: C**

"Organization and Functioning of Securities Markets," Frank K. Reilly, CFA and Keith C. Brown, CFA  
2010 Modular Level I, Vol. 5, pp. 6-7  
Study Session 13-52-a  
Describe the characteristics of a well-functioning securities market.

Price continuity means that prices do not change much from one transaction to the next unless substantial new information becomes available.

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82. An analyst gathered the following information for a company whose common stock is currently priced at \$40 per share:

	2005	2006	2007	2008	2009
Earnings per share (\$)	1.16	0.62	1.28	1.60	(1.30)
Book value per share (\$)	8.48	8.92	16.04	19.28	16.30
Return on equity (ROE)	14%	7%	8%	8%	

A severe cyclical contraction occurred in 2009 for a major segment of the company's operations. What is the *most* accurate estimate of the stock's P/E ratio assuming the analyst uses the average ROE method for normalizing the firm's EPS?

- A. 26.5
- B. 32.8
- C. 34.2

**Answer: A**

“Introduction to Price Multiples,” John D. Stowe, CFA, Thomas R. Robinson, CFA, Jerald E. Pinto, CFA, and Dennis W. McLeavey, CFA  
2010 Modular Level I, Vol. 5, pp. 200-202  
Study Session 14-59-b  
Calculate and interpret P/E, P/BV, P/S, and P/CF.

To normalize the EPS, multiply the current book value per share with the average ROE for the most recent full cycle. Normalized P/E = current market price / normalized EPS.

Average ROE =  $(14 + 7 + 8 + 8)/4 = 9.25$ ;

Normalized EPS = Normalized ROE x 2009 BVPS =  $0.0925 \times 16.30 = \$1.51$

Normalized P/E =  $\$40/1.51 = 26.5$ .

83. Which of the following *most accurately* describes the computation of nearly all bond market indices, U.S. and global?
- A. Model priced
  - B. Trader priced
  - C. Market priced

**Answer: B**

“Security-Market Indexes,” Frank K. Reilly, CFA and Keith C. Brown, CFA  
2010 Modular Level I, Vol. 5, pp. 54-60  
Study Session 13-53-b

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Compare and contrast major structural features of domestic and global stock indices, bond indices, and composite stock-bond indices.

According to Exhibit 13 (pp.58-59), 11 out of the 12 major bond indexes are trader priced and only one index (Ryan Treasury) is market priced. Two other indices, Lehman Brothers and Merrill Lynch, are both trader priced and model priced.

84. An analyst gathers the following data about a company and the market:

Earnings per share – most recent year	\$2.00
Expected growth rate of dividends	5.10%
Dividend payout ratio	60%
Stock's beta	1.50
Market risk premium	5.60%
Risk-free rate	4.20%
Company's weighted average cost of capital	12.00%

Using the dividend discount model the company's price per share (in \$) is *closest* to:

- A. 16.00.
- B. 16.82.
- C. 18.28.

**Answer: B**

“An Introduction to Asset Pricing Models,” Frank K. Reilly, CFA and Keith C. Brown, CFA

2010 Modular Level I, Vol. 4, pp. 277-279

“An Introduction to Security Valuation,” Frank K. Reilly, CFA and Keith C. Brown, CFA

2010 Modular Level I, Vol. 5, pp. 142-143

Study Session 12-51-e, 14-56-c

Calculate, using the SML, the expected return on a security and evaluate whether the security is overvalued, undervalued, or properly valued.

Calculate and interpret the value of both a preferred stock and a common stock using the dividend discount model (DDM).

Dividend per share = Earnings per share x Payout ratio;  $k = E(R_i) = RFR + \beta_i (R_M - RFR)$ ;

$V_j = D_1 / (k - g)$ , where  $V_j$  = value of stock;  $D_1 = D_0 (1 + g)$ ;

$k_s$  = the required rate of return;  $g$  = the constant growth rate of dividends.

Most recent dividend ( $D_0$ ) =  $2.00 (0.6) = 1.20$

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$$k = 4.20 + 5.60(1.50) = 12.60\%;$$

$$V = 1.20(1.051) / (0.126 - 0.051) = \$16.82$$

Note: The notation of  $E(R_i)$  in p. 279 (Vol. 4) is the same as  $k$  in p. 142 (Vol. 5).

85. All else equal, a decrease in the expected rate of inflation will *most likely* result in a decrease in:
- A. the real risk-free rate.
  - B. the nominal risk-free rate.
  - C. both real and nominal risk-free rates.

**Answer: B**

“An Introduction to Security Valuation,” Frank K. Reilly, CFA and Keith C. Brown, CFA

2010 Modular Level I, Vol. 5, pp. 153-155

Study Session 14-56-e

Explain the components of an investor’s required rate of return (i.e., the real risk-free rate, the expected rate of inflation, and a risk premium) and discuss the risk factors to be assessed in determining an equity risk premium for use in estimating the required return for the investment in each country.

The nominal risk-free rate of return includes both the real risk-free rate of return and the expected rate of inflation. A decrease in inflation expectations would decrease the nominal risk-free rate of return, but would have no effect on the real risk-free rate of return.

86. A security market in which all the bids and asks for a stock are gathered to arrive at a single price that satisfies most of the orders is *best* described as a:
- A. call market.
  - B. dealer market.
  - C. primary market.

**Answer: A**

“Organization and Functioning of Securities Markets,” Frank K. Reilly, CFA and Keith C. Brown, CFA

2010 Modular Level I, Vol. 5, pp. 13-15

Study Session 13-52-c

Distinguish between call and continuous markets.

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A call market is a market in which all the bids and asks for a stock are gathered to arrive at a single price where the quantity demanded is as close as possible to the quantity supplied.

87. Which of the following statements *most* accurately describes the weak-form Efficient Market Hypothesis (EMH)? The weak-form EMH assumes that current security prices:
- A. fully reflect all information from public and private sources.
  - B. fully reflect all security market information, including transactions by exchange specialists.
  - C. adjust rapidly to the release of all public information; that is, security prices fully reflect all public information.

**Answer: B**

“Efficient Capital Markets,” Frank K. Reilly, CFA and Keith C. Brown, CFA  
2010 Modular Level I, Vol. 5, pp. 70

Study Session 13-54-a

Define an efficient capital market and describe and contrast the three forms of the efficient market hypothesis (EMH).

The weak-form EMH assumes that current stock prices fully reflect all security market information, including transactions by exchange specialists.

88. An analyst gathered the following information about a company:

Current annual earnings per share ( $E_0$ ) reported	\$6.00
Current annual dividend per share ( $D_0$ ) paid on the company's common stock	\$2.40
Required rate of return on the company's common stock	15.0%
Expected constant growth rate in earnings and dividends	8.0%

If markets are in equilibrium, which of the following statements *best* describes the company's price-to- earnings (P/E) ratio? The company's P/E ratio based on the infinite period dividend discount model (DDM) is:

- A. less than the company's trailing P/E ratio.
- B. the same as the company's trailing P/E ratio.
- C. greater than the company's trailing P/E ratio.

**Answer: A**

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“An Introduction to Security Valuation,” Frank K. Reilly, CFA and Keith C. Brown, CFA

2010 Modular Level I, Vol. 5, pp. 142-143, 148-150

“Introduction to Price Multiples,” John D. Stowe, CFA, Thomas R. Robinson, CFA, Jerald E. Pinto, CFA, and Dennis W. McLeavey, CFA

2010 Modular Level I, Vol. 5, p. 198-200

Study Session 14-56-d; 14-59-b

Show how to use the DDM to develop an earnings multiplier model and explain the factors in the DDM that affect a stock’s price-to-earnings (P/E) ratio.

Calculate and interpret P/E, P/BV, P/S, and P/CF.

The trailing P/E ratio is computed as the current stock price divided by the current or trailing 12-months’ EPS. On the other hand, the P/E ratio based on the infinite period dividend discount model is computed as  $(D/E) / (k - g)$ .

If markets are in equilibrium, the price per share reflects the value determined by the constant growth dividend. Using the constant growth model the stock's value is  $(\$2.40)(1.08) / 0.07 = \$37.03$ ;

The trailing P/E =  $37.03 / 6 = 6.17$ . The DDM P/E is the dividend payout ratio divided by  $k - g = 0.4 / 0.07 = 5.71$ . Another way of computing DDM P/E is:

Current Market Price/Expected 12-month earnings:  $37.03 / (6.00 \times 1.08) = 5.71$ . (see p. 148)

89. An investor borrows the maximum amount allowed by the initial margin requirement of 40 percent to purchase 100 shares of a stock selling at \$60 per share. If the investor sells the stock when its price increases to \$70 per share, her return (%), before commissions and interest, will be *closest* to:
- A. 16.7
  - B. 27.8
  - C. 41.7

**Answer: C**

“Organization and Functioning of Securities Markets,” Frank K. Reilly, CFA and Keith C. Brown, CFA

2010 Modular Level I, Vol. 5, pp. 26-28

Study Session 13-52-g

Describe the process of buying a stock on margin, compute the rate of return on a margin transaction, define maintenance margin, and determine the stock price at which the investor would receive a margin call.

Investor’s return =  $(\text{Market value of the stock} - \text{Loan}) / \text{Investor’s Equity}$ .

Equity =  $100 \times 60 \times 0.4 = \$2,400$ ; Loan =  $100 \times 60 \times 0.6 = \$3,600$

Market value of the stock =  $(70 \times 100) = \$7,000$ ;

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Investor's return =  $(7,000 - 3,600) / \$2,400 - 1 = 41.667\%$ .

Alternatively, Return = Profit/Investment =  $100 \times (70-60)/2,400 = 41.667\%$

90. Data that helps to compute expected growth rates of companies are furnished below:

	<b>Company 1</b>	<b>Company 2</b>
Dividend payout ratio	37.5%	40.0%
Return on assets	12%	10.0%
Financial leverage	1.6	2.0

Which of the following *best* describes the expected growth rate of Company 1?

The expected growth rate of Company 1 compared to Company 2 is:

- A. lower.
- B. higher.
- C. the same.

**Answer: C**

“An Introduction to Security Valuation,” Frank K. Reilly, CFA and Keith C. Brown, CFA

2010 Modular Level I, Vol. 5, pp. 158-159

Study Session 14-56-f, g

Estimate the dividend growth rate, given the components of the required rate of return incorporating the earnings retention rate and current stock price.

Describe a process for developing estimated inputs to be used in the DDM, including the required rate of return and expected growth rate of dividends.

ROE = Return on assets x Financial leverage;

Retention rate =  $1 - (\text{Payout ratio})$ ;

$g = \text{Retention rate} \times \text{Return on equity}$

Company 1: ROE =  $12\% \times 1.6 = 19.2\%$ ;  $g = (1 - 0.375) \times 19.2 = 12\%$

Company 2: ROE =  $10\% \times 2.0 = 20.0\%$ ;  $g = (1 - 0.400) \times 20.0 = 12\%$

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**Questions 91 through 96 relate to Derivative Investments.**

91. A company is long an interest rate swap with a current market value of \$125,000. The company wants to terminate this swap before the expiration date. From a credit risk perspective, which is the *least* attractive way to terminate the swap?
- A. Sell the swap to a third party.
  - B. Short an offsetting swap with a third party.
  - C. Agree to terminate the swap and receive its market value from the counterparty.

**Answer: B**

“Swap Markets and Contracts,” Don M. Chance  
2010 Modular Level I, Vol. 6, pp. 133-134  
Study Session 17-71-a

Describe the characteristics of swap contracts and explain how swaps are terminated.

Both the initial and the offsetting swap remain in effect, exposing the company to potential default risk with two different counterparties.

92. A European stock index call option has a strike price of \$1,160 and a time to expiration of 0.25 years. Given a risk-free rate of 4 percent, if the underlying index is trading at \$1,200 and has a multiplier of 1, then the lower bound for the option price is *closest* to:
- A. \$28.29.
  - B. \$40.00.
  - C. \$51.32.

**Answer: C**

“Option Markets and Contracts”, Don M. Chance  
2010 Modular Level I, Vol. 6, pp. 103-107  
Study Session 17-70-i

Calculate and interpret the lowest prices of European and American calls and puts based on the rules for minimum values and lower bounds.

The lower bound on a European call is either zero or the underlying asset’s price minus the present value of the exercise price, whichever is greater.

$$\$1200 - (\$1160 / 1.04^{0.25}) = \$51.32.$$

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93. Which of these is *best* classified as a forward commitment?

- A. A swap agreement
- B. A convertible bond
- C. An asset-backed security

**Answer: A**

2010 Modular Level I, Vol. 6, pp. 7-10

Study Session 17-67-b

Define a forward commitment and a contingent claim

A swap agreement is equivalent to a series of forward agreements, which are described as forward commitments.

94. A company borrows €15 million from a bank for 1 year at a rate of LIBOR, currently 4.75%, plus 50 basis points. At the same time, the company enters a 1-year, plain vanilla interest rate swap to pay the fixed rate of 5.25% and receive LIBOR. Payments are made on the basis of 180 days in the settlement period. Floating payments are made on the basis of 360 days in a year while fixed payments are made on the basis of 365 days in a year. LIBOR is 5.00% on the first settlement date. The company's total interest expense for the loan and swap for the first settlement period is *closest* to:

- A. €388,400.
- B. €425,900.
- C. €444,600.

**Answer: B**

“Swap Markets and Contracts,” Don M. Chance

2010 Modular Level I, Vol. 6, pp.140-144

Study Session 17-71-b

Define, calculate, and interpret the payment of currency swaps, plain vanilla interest rate swaps, and equity swaps.

The company pays the swap dealer the fixed rate of 5.25%, pays the bank Libor of 4.75% (as set at the beginning of the period) plus .50% and receives Libor of 4.75% from the swap dealer.

Fixed payment:  $(15,000,000)(.0525)(180/365) = 388,356$

Floating payment:  $(15,000,000)(.0475 + .005 - .0475)(180/360) = 37,500$

Net interest expense: 425,856

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95. An investor purchases a 3-month put option on a stock with an exercise price of \$35. The risk free rate is 4.50%. At expiration, the stock price is \$33.50. The option's payoff is *closest* to:
- A. \$0.
  - B. \$1.48.
  - C. \$1.50.

**Answer: C**

“Option Markets and Contracts”, Don M. Chance  
2010 Modular Level I, Vol. 6, pp. 98-101  
Study Session 17-70-f

Compute and interpret option payoffs, and explain how interest rate option payoffs differ from the payoffs of other types of options.

The put option is worth the greater of \$0 or (exercise price – spot price at expiration). Since the exercise price is greater than the spot price at expiration, the put is worth  $(35 - 33.50) = \$1.50$ .

96. The following information relates to a futures contract:

Initial futures price on Day 0	\$100
Initial margin requirement	\$5
Maintenance margin requirement	\$3
Settlement price on Day 1	\$103
Settlement price on Day 2	\$96
Settlement price on Day 3	\$98

If no funds are withdrawn and margin calls are met at the beginning of the next day, the ending margin account balance on Day 3 for an investor with a short position of 10 contracts is *closest* to:

- A. \$70.
- B. \$80.
- C. \$100.

**Answer: C**

“Futures Markets and Contracts”, Don M. Chance  
2010 Modular Level I, Vol. 6, pp. 55-60  
Study Session 17-69-d

Describe price limits and the process of marking to market and compute and interpret the margin balance, given the previous day's balance and the change in the futures price.

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At the end of Day 1, the balance in the investor's account would be \$20.  
At the beginning of Day 2, the investor would deposit \$30.  
At the end of Day 2, the balance in the investor's account would be \$120.  
At the end of Day 3, the balance in the investor's account would be \$100.

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**Questions 97 through 108 relate to Fixed Income Investments.**

97. Which of the following provides the *most* protection to a bondholder?

- A. Call protection.
- B. Refunding protection.
- C. Sinking fund protection.

**Answer: A**

“Features of Debt Securities,” Frank J. Fabozzi, CFA  
2010 Modular Level I, Vol. 5, pp. 246  
Study Session 15-60-d

Explain the provisions for redemption and retirement of bonds.

Call protection means the bond cannot be called from the bondholder by the issuer for any reason.

98. Which embedded option is *most* beneficial to a bond issuer?

- A. A conversion privilege.
- B. A floor on a floating rate bond.
- C. An accelerated sinking fund provision.

**Answer: C**

“Features of Debt Securities,” Frank J. Fabozzi, CFA  
2010 Modular Level I, Vol. 5, pp. 249-250  
Study Session 15-60-e

Identify the common options embedded in a bond issue, explain the importance of embedded options, and state whether such options benefit the issuer or the bondholder.

An accelerated sinking fund provision gives the issuer an option to retire more than the sinking fund requirement. The other embedded options benefit bondholders.

99. The *most* relevant definition for duration is:

- A. a security’s price sensitivity to changes in yield.
- B. the first derivative of the security’s price with respect to yield.
- C. the weighted-average time until receipt of the present value of cash flows.

**Answer: A**

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“Introduction to the measurement of interest rate risk,” Frank J. Fabozzi, CFA  
2010 Modular Level I, Vol. 5, pp. 542-543

Study Session 16-66-e

Distinguish among the alternative definitions of duration and explain why effective duration is the most appropriate measure of interest rate risk for bonds with embedded options.

This is the most relevant definition because users of duration are interested in a security’s price sensitivity to changes in yield.

100. An endowment’s fixed income portfolio comprises three bonds whose market values, par values, coupon rates, and durations are given in the following table:

	<b>Bond 1</b>	<b>Bond 2</b>	<b>Bond 3</b>
Market value	\$500,000	\$1,200,000	\$300,000
Par value	\$580,000	\$1,100,000	\$320,000
Coupon rate	11.0%	6.0%	9.0%
Duration	6.2	8.1	2.9

The portfolio’s duration is *closest* to:

- A. 5.73.
- B. 6.31
- C. 6.85.

**Answer: C**

“Introduction to the measurement of interest rate risk,” Frank J. Fabozzi, CFA  
2010 Modular Level I, Vol. 5, pp. 544-545.

Study Session 16-66-f

Compute the duration of a portfolio, given the duration of the bonds comprising the portfolio, and explain the limitations of portfolio duration.

The duration of a portfolio is equal to the sum of the weighted durations of the individual bonds, with each weight equal to the market value of the bond divided by the market value of the portfolio, then

$$\frac{500,000}{2,000,000} * 6.2 + \frac{1,200,000}{2,000,000} * 8.1 + \frac{300,000}{2,000,000} * 2.9 = 1.55 + 4.86 + 0.435 = 6.85$$

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101. Jasper Corporation sold its receivables to a special purpose vehicle, JTL Corporation, created by Jasper for that purpose. If JTL sells securities backed by the receivables, the credit rating associated with those securities will *most likely* be based on the:
- A. creditworthiness of JTL.
  - B. creditworthiness of Jasper.
  - C. collateral and credit enhancement mechanisms used.

**Answer: C**

“Overview of Bond Sectors and Instruments,” Frank J. Fabozzi  
2010 Modular Level I, Vol. 5, pp. 336-338  
Study Session 15-62-i

Define an asset-backed security, describe the role of a special purpose vehicle in an asset-backed security’s transaction, state the motivation for a corporation to issue an asset-backed security, and describe the types of external credit enhancements for asset-backed securities.

The rating of asset-backed securities typically is independent of the issuer or originating firm’s credit; the rating depends on the collateral offered and the strength of any external or internal credit enhancements.

102. A bond has a modified duration of 6.5 and convexity of -42.4. If interest rates decrease by 1.0 percent, the percentage change in the value of the bond will be *closest* to:
- A. -6.92%.
  - B. +2.76%.
  - C. +6.08%.

**Answer: C**

“Introduction to the measurement of interest rate risk,” Frank J. Fabozzi, CFA  
2010 Modular Level I, Vol. 5, pp. 545-547.  
Study Session 16-66-g

Describe the convexity measure of a bond and estimate a bond’s percentage price change, given the bond’s duration and convexity and a specified change in interest rates.

The percentage change in the bond’s value is equal to:

$$\begin{aligned} & (-\text{Duration} \times \Delta y^* \times 100\%) + (C \times (\Delta y^*)^2 \times 100\%) \\ & = (-6.5 \times -0.01 \times 100\%) + (-42.4 \times (-0.01)^2 \times 100\%) = +6.5\% - 0.424\% = +6.08. \end{aligned}$$

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103. An investor is considering the purchase of two bonds. One is a 5% coupon tax-exempt bond that yields 4.5% while the other is a 7% coupon bond that is taxable and yields 6.0%. If the two bonds are alike in all other characteristics, the marginal tax rate that would make the investor indifferent between the two bonds is *closest* to:
- A. 25.0%.
  - B. 28.6%.
  - C. 33.3%.

**Answer: A**

“Understanding Yield Spreads,” Frank J. Fabozzi  
2010 Modular Level I, Vol. 5, pp. 375-377  
Study Session 15-63-i

Compute the after-tax yield of a taxable security and the tax-equivalent yield of a tax-exempt security.

The indifference point would be the tax rate that satisfies the equation:  $6.0\% \times (1 - T) = 4.5\%$ . Solving for T, the marginal tax rate = 25%.

104. An investor is evaluating a diverse set of bonds from which he will select two issues. The investor’s objective is to find bonds with cash flows that will precisely match a known stream of future cash outflows. The pair of bonds *most likely* to meet the investor’s objective is a:
- A. putable bond and a callable bond.
  - B. zero-coupon bond and a Treasury strip.
  - C. mortgage-backed-security and an asset-backed security.

**Answer: B**

“Introduction to the Valuation of Debt Securities,” Frank J. Fabozzi  
2010 Modular Level I, Vol. 5, p. 400  
Study Session 16-64-b

Identify the types of bonds for which estimating the expected cash flows is difficult and explain the problems encountered when estimating the cash flows for these bonds.

Both the zero coupon and Treasury strip bonds have cash flows that can be estimated with certainty.

105. An analyst has gathered the following information:

Year	3-Year Treasury Rate	Treasury Spot Rate
1	3.75%	3.00%
2	3.75%	3.50%
3	3.75%	4.00%

Based on the arbitrage-free valuation approach, a \$1,000 face value bond that pays a 5 percent annual coupon and matures in 3 years has a current market value *closest to*:

- A. \$1,027.75.
- B. \$1,028.67.
- C. \$1,034.85.

**Answer: B**

“Introduction to the Valuation of Debt Securities,” Frank J. Fabozzi  
2010 Modular Level I, Vol. 5, pp. 401-402; 416-422  
Study Session 16-64-c, f

Compute the value of a bond and the change in value that is attributable to a change in the discount rate.

Explain the arbitrage-free valuation approach and the market process that forces the price of a bond toward its arbitrage-free value and explain how a dealer can generate an arbitrage profit if a bond is mispriced.

Each cash flow is discounted by the appropriate spot rate:

$$\frac{50.00}{1.03} + \frac{\$50.00}{(1.035)^2} + \frac{\$1,050.00}{(1.04)^3} = \$48.54 + \$46.68 + \$933.45 = \$1,028.67$$

106. All U.S. Treasury coupon strips are:

- A. zero-coupon securities.
- B. issued directly by the U.S. Treasury.
- C. created from pooled coupon payments of U.S. Treasury securities.

**Answer: A**

“Overview of Bond Sectors and Instruments,” Frank J. Fabozzi  
2010 Modular Level I, Vol. 5, p. 309  
Study Session 15-62-c

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Describe how stripped Treasury securities are created and distinguish between coupon strips and principal strips.

Although the U.S. Treasury does not issue zero-coupon securities, it has created the STRIPS program through which securities that are stripped from the principal or interest payments of U.S. Treasury securities become direct obligations of the U.S. government.

107. A moral obligation bond is also known as:

- A. a prerefunded bond.
- B. a general obligation debt.
- C. an appropriation-backed obligation

**Answer: C**

“Overview of Bond Sectors and Instruments,” Frank J. Fabozzi  
2010 Modular Level I, Vol. 5, pp. 321-323  
Study Session 15-62-g

Describe the types of securities issued by municipalities in the United States and distinguish between tax-backed debt and revenue bonds.

Some municipal bonds include a nonbinding pledge of additional tax revenue to make up any shortfalls; however legislative approval is required for the additional appropriation. These are known as moral obligation bonds. They are a form of general obligation debt, but most general obligation debt does not include such a pledge. In contrast, a prerefunded bond is backed by a trust of riskless securities that provide cash flows sufficient to pay the interest and principal payments of the bond.

108. Corporate debt securities that are offered continuously to investors by an agent of the issuer are *best* described as:

- A. range notes.
- B. structured notes.
- C. medium-term notes.

**Answer: C**

“Overview of Bond Sectors and Instruments,” Frank J. Fabozzi  
2010 Modular Level I, Vol. 5, pp. 330-332  
Study Session 15-62-h

Describe the characteristics and motivation for the various types of debt issued by corporations (including corporate bonds, medium-term notes, structured notes, commercial paper, negotiable CDs, and bankers acceptances.)

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The unique features of medium-term notes are that they can be offered continuously over a period of time to investors at maturities desired by the investors.

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**Questions 109 through 114 relate to Alternative Investments.**

109. Which classification of hedge funds is *least likely* to use a short position in stock as a part of its strategy?

- A. Market-neutral funds.
- B. Emerging-market funds.
- C. Distressed securities funds.

**Answer: B**

“Alternative Investments,” Bruno Solnik and Dennis McLeavey  
2010 Modular Level I, Vol. 6, p. 223  
Study Session 18-73-i

Define hedge fund in terms of objectives, legal structure, and fee structure, and describe the various classifications of hedge funds.

Emerging-market funds invest in less liquid and less efficient assets of emerging markets that are difficult to short.

110. When comparing investing in exchanged traded funds (ETFs) to investing in open-end mutual funds, which of these is *most likely not* an advantage of ETFs? ETFs:

- A. provide lower exposure to taxes related to capital gains distribution.
- B. trade throughout the entire trading day at market prices that are continuously updated.
- C. are a more cost effective way for large institutional investors to invest in less liquid markets.

**Answer: C**

“Alternative Investments,” Bruno Solnik and Dennis McLeavey  
2010 Modular Level I, Vol. 6, pp. 195-197  
Study Session 18-73-b,c

Distinguish among style, sector, index, global, and stable value strategies in equity investment and among exchange traded funds (ETFs), traditional mutual funds, and closed end funds.

Explain the advantages and risks of ETFs.

Some sector and international ETFs have large bid-ask spreads and substantial expense ratios compared to managed portfolios, which may provide a more cost efficient alternative to ETFs, particularly for large institutional investors.

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111. A real estate investment has the following characteristics:

Annual rental income	\$1,800,000
Annual operating expenses	\$1,200,000
Available mortgage rate	6%
Financing percentage	90%
Capitalization Rate	15%
Estimated holding period	5 years
Investor's tax rate	25%

Based on the income approach, the value of the investment is *closest* to:

- A. \$4,000,000.
- B. \$5,455,000.
- C. \$6,133,000.

**Answer: A**

“Alternative Investments,” Bruno Solnik and Dennis McLeavey  
2010 Modular Level I, Vol. 6, pp. 205-207  
Study Session 18-73-f

Calculate the net operating income (NOI) from a real estate investment, the value of a property using the sales comparison and income approaches, and the after-tax cash flows, net present value, and yield of a real estate investment

Using the income approach:  
 $(\$1,800,000 - \$1,200,000)/0.15 = \$4,000,000$ .

112. Venture capital investments used to provide capital for companies initiating commercial manufacturing and sales are *most likely* to be considered a form of:

- A. first-stage financing.
- B. mezzanine financing.
- C. second-stage financing.

**Answer: A**

“Alternative Investments,” Bruno Solnik and Dennis McLeavey  
2010 Modular Level I, Vol. 6, p. 214  
Study Session 18-73-g

Explain the stages in venture capital investing, venture capital investment characteristics, and challenges to venture capital valuation and performance measurement

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Venture capital investments provided to initiate commercial manufacturing and sales is considered a form of first-stage financing.

113. An analyst compared the performance of a hedge fund index with the performance of a major stock index over the past eight years. She noted that the hedge fund index (created from a database) had a higher average return, higher standard deviation, and higher Sharpe ratio than the stock index. All the successful funds that have been in the hedge fund database continued to accept new money over the eight-year period. What biases do the risk and return measures in the database *most likely* have? Average return:
- A. and standard deviation are both overstated.
  - B. is overstated and standard deviation is understated.
  - C. is understated and standard deviation is overstated.

**Answer: B**

“Alternative Investments,” Bruno Solnik and Dennis McLeavey  
2010 Modular Level I, Vol. 6, pp. 228-230  
Study Session 18-73-1

Discuss the performance of hedge funds, the biases present in hedge fund performance measurement; and explain the effect of survivorship bias on the reported return and risk measures for a hedge fund data base.

Survivorship bias affects both the returns and the risk (standard deviation) reported for the hedge funds. Hedge funds with low or negative returns will be excluded from the index as will funds with high volatility; those funds will not survive for eight years. If only the successful funds remain in the index, the returns are overstated and risk is understated. Overstated returns and understated risk will both tend to overstate the Sharpe ratio.

114. An analyst estimates that an initial investment of £500,000 in a venture capital project will pay £6 million at the end of five years if the project succeeds and that the probability the project survives to the end of the fifth year is 25 percent. The required rate of return for the project is 19 percent. The expected net present value of the venture capital investment is *closest* to:
- A. £128,000.
  - B. £1,125,000.
  - C. £2,014,000.

**Answer: A**

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"Alternative Investments," Bruno Solnik and Dennis McLeavey  
2010 Modular Level I, Vol. 6, pp. 216-218

Study Session 18-73-h

Calculate the net present value (NPV) of a venture capital project, given the project's possible payoff and conditional failure probabilities.

The probability that the venture will pay 6 million at the end of five years is 25%. The probability of failure is 75%. The expected NPV if the project succeeds is 2,014,296 using  $FV = 6,000,000$ ,  $I = 19\%$ ,  $n = 5$  for a present value of  $2,514,296 - 500,000 = 2,014,296$ .

The NPV of the project is  $0.25(2,014,296) + 0.75(-500,000) = £128,574$ . The investment has a positive NPV and should be accepted.

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**Questions 115 through 120 relate to Portfolio Management.**

115. Which of the following statements is *least* accurate? An investor may construct a portfolio located on the capital market line (CML) by:

- A. investing a portion of his capital in the risk-free asset and the balance in a fully diversified portfolio of all equities.
- B. investing a portion of his capital in the risk-free asset and the balance in a fully diversified portfolio of all risky assets.
- C. borrowing capital at the risk-free rate and investing all his capital plus all borrowed capital in a fully diversified portfolio of all risky assets.

**Answer: A**

“An Introduction to Asset Pricing Models,” Frank K. Reilly and Keith C. Brown  
2010 Modular Level I, Vol. 4, pp. 270-276

Study Session 12-51-b

Identify the market portfolio, and describe the role of the market portfolio in the formation of the capital market line (CML)

A is correct. This statement is incorrect. Portfolios located on the CML may be constructed by: 1) investing a portion of an investor’s capital in the risk-free asset and the balance in the market portfolio which consists of all risky assets, or 2) borrowing capital at the risk-free rate and investing all of an investor’s capital plus all borrowed capital in the market portfolio.

116. The *least likely* reason for constructing an investment policy statement is that it:

- A. minimizes the costs of portfolio construction.
- B. helps investors create realistic investment goals.
- C. establishes a performance benchmark to judge manager performance.

**Answer: A**

“The Asset Allocation Decision”, Frank K. Reilly and Keith C. Brown.  
2010 Modular Level I, Vol. 4, pp. 215-217

Study Session 12-49-a

Describe the steps in the portfolio management process and explain the reasons for a policy statement.

A is correct. This is not a reason for constructing an investment policy statement. The two reasons are: 1) it helps investors create realistic investment goals, and 2) it identifies a benchmark portfolio that will be used to judge the performance of the portfolio manager.

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117. An analyst gathered the following information about two common stocks:

- Variance of returns for the Libby Company = 15.5
- Variance of returns for the Metromedia Company = 22.3
- Covariance between returns of Libby Company and Metromedia Company = 8.65

The correlation coefficient between returns for the two common stocks is *closest* to:

- A. 0.025.
- B. 0.388.
- C. 0.465.

**Answer: C**

“An Introduction to Portfolio Management,” Frank K. Reilly and Keith C. Brown  
2010 Modular Level I, Vol. 4, pp. 248-249

Study Session 12-50-d

Compute and interpret the covariance of rates of return, and show how it is related to the correlation coefficient.

C is correct. The correlation coefficient =  $r_{ij} = \frac{Cov_{ij}}{\sigma_i \sigma_j}$ .

Standard deviation of Libby =  $\sqrt{15.5} = 3.937$

Standard deviation of Metromedia =  $\sqrt{22.3} = 4.722$

Correlation between Libby and Metromedia =  $\frac{8.65}{3.937 \times 4.722} = 0.465$

118. According to the Capital Asset Pricing Model (CAPM), the market portfolio:

- A. includes all risky assets invested in equal amounts.
- B. is exposed to both unsystematic and systematic risk.
- C. is perfectly positively correlated with other portfolios on the CML.

**Answer: B**

“An Introduction to Asset Pricing Models,” Frank K. Reilly and Keith C. Brown  
2010 Modular Level I, Vol. 4, pp. 272-276

Study Session 12-51-b

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Identify the market portfolio, and describe the role of the market portfolio in the formation of the capital market line (CML).

B is correct. According to the CAPM the market portfolio is perfectly positively correlated with all other portfolio on the CML. All risky assets are included in the market portfolio in proportion to their market value, not in equal amounts. The market portfolio contains only systematic risk since it is completely diversified.

119. An investment strategy that seeks to grow portfolio value over time through capital gains and reinvestment of current income is *most likely* appropriate if the investment objective is:
- A. total return.
  - B. current income.
  - C. capital preservation.

**Answer: A**

“The Asset Allocation Decision”, Frank K. Reilly and Keith C. Brown  
2010 Modular Level I, Vol. 4, p. 219  
Study Session 12-49-c

Describe the return objectives of capital preservation, capital appreciation, current income, and total return.

A is correct. A total return objective is consistent with an investment strategy that seeks to grow portfolio value over time through capital gains and reinvestment of portfolio income.

120. The standard deviation of returns for shares of Oakmont Corporation and Sunrise Corporation are 14% and 12% respectively. If the correlation between the two stocks is 0.25, a portfolio consisting of 35% invested in Oakmont and 65% in Sunrise has a standard deviation *closest* to:
- A. 10.2%
  - B. 12.7%
  - C. 35.0%

**Answer: A**

“An Introduction to Portfolio Management,” Frank K. Reilly and Keith C. Brown  
20109 Modular Level I, Vol. 4, pp. 250-257  
Study Session 12-50-c

Compute and interpret the expected return, variance, and standard deviation for an

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individual investment and the expected return and standard deviation for a portfolio.

A is correct. The standard deviation of portfolio returns is:

$$\sqrt{(0.35^2)(0.14^2) + (0.65^2)(0.12^2) + 2(0.35)(0.65)(0.25)(0.14)(0.12)} = 10.2\%$$

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