

## 2013 Level I Mock Exam: Morning Session

The morning session of the 2013 Level I Chartered Financial Analyst (CFA<sup>®</sup>) Mock Examination has 120 questions. To best simulate the exam day experience, candidates are advised to allocate an average of 1.5 minutes per question for a total of 180 minutes (3 hours) for this session of the exam.

Questions	Topic	Minutes
1–18	Ethical and Professional Standards	27
19–32	Quantitative Methods	21
33–44	Economics	18
45–68	Financial Statement Analysis	36
69–78	Corporate Finance	15
79–90	Equity Investments	18
91–96	Derivative Investments	9
97–108	Fixed Income Investments	18
109–114	Alternative Investments	9
115–120	Portfolio Management	9
	<b>Total:</b>	<b>180</b>

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

1. Bailey Watson, CFA manages 25 emerging market pension funds. He recently had the opportunity to buy 100,000 shares in a publicly listed company whose prospects are considered “above industry norm” by most analysts. The company’s shares rarely trade because most managers take a “buy and hold” strategy because of the company’s small free float. Before placing the order with his dealer, Watson allocated the shares to be purchased according to the weighted value of each of his clients’ portfolios. When it came time to execute the trades, the dealer was only able to purchase 50,000 shares. To prevent violating Standard III (B) Fair Dealing, it would be *most* appropriate for Watson to reallocate the 50,000 shares purchased by:
  - A. reducing each pension fund’s allocation proportionately.
  - B. distributing them equally amongst all the pension fund portfolios.
  - C. allocating randomly but giving funds left out priority on the next similar type trade.

Answer = A

“Guidance for Standards I–VII,” CFA Institute

2013 Modular Level I, Vol. 1, Reading 2, Standard III (B) Fair Dealing

Study Session 1–2–c

Recommend practices and procedures designed to prevent violations of the Code of Ethics and Standards of Professional Conduct.

A is correct because Standard III (B) Fair Dealing requires members and candidates to deal fairly and objectively with all clients. Certain clients cannot be favored over other clients when their investment objectives and circumstances are similar. Therefore, the most appropriate way to handle the reallocation of an illiquid share is to reduce each client’s proportion on a pro rata, or weighted basis.

2. Dilshan Kumar, CFA, is a world-renowned mining analyst based in London. Recently, he received an invitation from Cerberus Mining, a London Stock Exchange listed company with headquarters in Johannesburg, South Africa. Cerberus asked Kumar to join a group of prominent analysts from around the world on a tour of its mines in South Africa, some of which are in remote locations, not easily accessible. The invitation also includes an arranged wildlife safari to Krueger National Park for the analysts. Kumar accepts the invitation, planning to visit other mining companies he covers in Namibia and Botswana after the safari. To prevent violating any CFA Institute Standards of Professional Conduct, it is *most* appropriate for Kumar to only accept which type of paid travel arrangements from Cerberus?
  - A. Ground transportation to Krueger National Park
  - B. Economy class round trip ticket from London to Johannesburg
  - C. Flights on a private airplane to the remote mining sites in South Africa

Answer = C

“Guidance for Standards I–VII,” CFA Institute  
2013 Modular Level I, Vol. 1, Reading 2, Standard I (B) Independence and Objectivity  
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 because Standard I (B) Independence and Objectivity requires members and candidates to use reasonable care and judgment to maintain their independence and objectivity in their professional activities. Best practice dictates that Kumar only accept transportation to the remote mining sites in that it is unlikely he would be able to source commercial flights to the locations and ground transport may not be viable. Because Kumar would normally visit mining sites around the world as part of his job and because he is combining this trip with trip to other mine sites in different countries, it would be inappropriate for Cerberus to pay for the analyst’s travel expenses from London. Although Kumar could go on safari with the group of analysts, he should pay his own way so as to restrict any influence such a gift could possibly have when making his investment recommendations on Cerberus.

3. Abdul Naib, CFA, was recently asked by his employer to submit an updated document providing the history of his employment and qualifications. The existing document on file was submitted when he was hired five years ago. His employer notices the updated version shows Naib obtained his Master of Business Administration (MBA) degree two years ago, whereas the earlier version indicated he had already obtained his MBA. Because the position Naib was hired for had a minimum qualification of an MBA, Naib is asked to explain the discrepancy. He justifies his actions by stating: “I knew you wouldn’t hire me if I didn’t have an MBA degree, but I already had my CFA designation. Knowing you required an MBA, I went back to school on a part-time basis after I was hired to obtain it. I graduated at the top of my class, but this shouldn’t come as any surprise, as you have seen evidence I passed all of my CFA exams on the first attempt.” Did Naib *most likely* violate the CFA Institute Standards of Professional Conduct?
- A. No
  - B. Yes, with regard to Misconduct
  - C. Yes, with regard to Reference to the CFA Designation

Answer = B

“Guidance for Standards I–VII,” CFA Institute  
2013 Modular Level I, Vol. 1, Reading 2, Standard I (D) Misconduct, Standard VII (B) Reference to CFA Institute, the CFA Designation and the CFA Program, pp. 46, 138–140  
Study Session 1–2–b  
Distinguish between conduct that conforms to the Code and Standards and conduct that violates the Code and Standards.

B is correct because Naib knowingly misrepresented his qualifications by stating he had obtained an MBA degree at the time of his hire when in fact he had not. This reflects adversely on his professional integrity, violating Standard I (D) Misconduct. Stating he passed his CFA exams in three consecutive years is not a violation of Standard VII (B) Reference to CFA Institute,

the CFA Designation, and the CFA Program if it is factual. There is no evidence given to indicate he did not pass as claimed.

4. Jack Steyn, CFA, recently became the head of the trading desk at a large investment management firm that specializes in domestic equities. While reviewing the firm's trading operations, he notices clients give discretion to the manager to select brokers on the basis of their overall services to the management firm. Despite the client directive, Steyn would *most likely* violate Standard III (A) Loyalty, Prudence, and Care if he pays soft commissions for which of the following services from the brokers?
- A. Equity research reports
  - B. Investment conference attendance
  - C. Database services for offshore investments

Answer = C

"Guidance for Standards I–VII," CFA Institute  
2013 Modular Level I, Vol. 1, Reading 2, Standard III (A) Soft Commission Policies, pp. 63–64  
Study Session 1–2–b  
Distinguish between conduct that conforms to the Code and Standards and conduct that violates the Code and Standards.

C is correct because Standard III (A) Loyalty, Prudence and Care stipulates that the client owns the brokerage. Therefore members and candidates are required to only use client brokerage to the benefit of the clients (soft commissions policy). Because the firm specializes in domestic equity, an offshore investment database service would not benefit clients.

5. Elbie Botha, CFA, an equity research analyst at an investment bank, disagrees with her research team's buy recommendation for a particular company's rights issue. She acknowledges the recommendation is based on a well-developed process and extensive research but feels the valuation is overpriced based on her assumptions. Despite her contrarian view, her name is included on the research report to be distributed to all of the investment bank's clients. To avoid violating any CFA Institute standards, it would be *least* appropriate for Botha to undertake which of the following?
- A. Leave her name on the report
  - B. Insist her name is removed from the report
  - C. Issue a new report based on her conclusions

Answer = C

"Guidance for Standards I–VII", CFA Institute  
2013 Modular Level I, Vol. 1, Reading 2, Standard IV (A) Loyalty, Standard V (A) Diligence and Reasonable Basis  
Study Session 1–2–b

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

C is correct because Standard IV (A) calls for employees to be loyal to their employer by not causing harm. If Botha released a contradictory research recommendation report to clients, it could possibly cause confusion amongst clients and embarrassment to the firm.

6. Colleen O’Neil, CFA, manages a private investment fund with a balanced global investment mandate. Her clients insist that her personal investment portfolio replicate the investments within their portfolio to assure them she is willing to put her money at risk. By undertaking which of the following simultaneous investment actions for her own portfolio would O’Neil *most likely* be in violation of Standard VI (B) Priority of Transactions?
- A. Sale of a listed U.S. blue chip value stock
  - B. Participation in a popular frontier market IPO
  - C. Purchase of a UK government bond in the primary market

Answer = B

“Guidance for Standards I–VII,” CFA Institute  
2013 Modular Level I, Vol. 1, Reading 2, Standard VI (B) Priority of Transactions  
Study Session 1–2–b

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

B is correct because Standard VI (B) Priority of Transactions dictates members and candidates give their clients and employer priority when making personal investment transactions. Even when clients allow or insist the manager invest alongside them, the manager’s transactions must never adversely affect the interests of the clients. A popular or “hot” IPO in a frontier market is likely to be oversubscribed. In such cases, Standard VI (B) dictates the manager should not participate in this event to better ensure clients will have a higher probability of getting their full subscription allotment, even though clients have allowed or dictated that she participate alongside them.

7. Christina Ng, a Level I CFA candidate, defaulted on a bank loan she obtained to pay for her Master’s degree tuition when her wedding cost more than expected. A micro finance loan company lent her money to pay off the tuition loan in full, including penalties and interest. The micro finance loan company even extended further credit to pay for her parents’ outstanding medical bills. Unfortunately, her parents’ health problems escalated to the point where Ng had to take extensive time away from work to deal with the issues. She was subsequently fired and consequently defaulted on the second loan. Because she was no longer employed, Ng decided to file for personal bankruptcy. Do the loan defaults leading up to Ng’s bankruptcy *most likely* violate Standard I (D) Misconduct?
- A. No
  - B. Yes, with regard to the first loan default

C. Yes, with regard to the second loan default

Answer = A

“Guidance for Standards I–VII,” CFA Institute  
2013 Modular Level I, Vol. 1, Reading 2, Standard I (D) Misconduct  
Study Session 1–2–a

Demonstrate the application of the Code of Ethics and Standards of Professional Conduct to situations involving issues of professional integrity.

A is correct because although Ng’s first loan default, which played a part in the subsequent bankruptcy, is a result of poor financial choices (i.e. paying for higher wedding costs rather than her tuition loan), neither of the loan defaults or the bankruptcy involves fraudulent or deceitful business conduct but are based on unfortunate personal circumstances. Therefore, she would most likely not be in violation of Standard I (D) Misconduct.

8. Charles Mbuwanga, a Level III CFA Candidate, is the business development manager for Sokoza Investment Group, an investment management firm with high-net-worth retail clients throughout Africa. Sokoza introduced listed Kenyan Real Estate Investment Trusts (REITs) to its line of investment products based on new regulations introduced in Kenya so as to diversify its product offering to clients. The product introduction comes after months of researching Kenyan property correlations with other property markets and asset classes in Africa. Sokoza assigns Mbuwanga as part of the sales team in introducing this product to its clients across Africa. Mbuwanga subsequently determines most of Sokoza’s clients’ portfolios would benefit from having a small Kenyan property exposure to help diversify their investment portfolios. By promoting the Kenyan REITs for Sokoza’s client portfolios as planned, Mbuwanga would *least likely* violate which of the following standards?

- A. Suitability
- B. Knowledge of the Law
- C. Independence and Objectivity

Answer = C

“Guidance for Standards I–VII,” CFA Institute  
2013 Modular Level I, Vol. 1, Reading 2, Standard I (A) Knowledge of the Law, Standard I (B) Independence and Objectivity, Standard III (C) Suitability  
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 because there is no indication Mbuwanga’s recommendation is based on any compensation package based on sales targets as being part of the sales team. If he had a sales target as part of his responsibility to promote the new product, it could be conceived that his independence and objectivity was in question. Mbuwanga does, however, seem to be in violation of Standard III (C) Suitability in that, although research with regard to correlation was undertaken, an analysis based on each individual client’s return and risk objectives was not

done. He may also be in violation of Standard I (A) Knowledge of the Law in that he would need to determine if the Kenyan REIT product is allowable in each of the countries where his clients reside.

9. Victoria Christchurch, CFA, is a management consultant currently working with a financial services firm interested in curtailing its high staff turnover, particularly amongst CFA charterholders. In recent months, the company lost 5 of its 10 most senior managers, all of whom have cited systemic unethical business practices as the reason for their leaving. To curtail staff turnover by encouraging ethical behavior, it would be *least* appropriate for Christchurch to recommend the company do which of the following?
- A. Implement a whistleblowing policy
  - B. Encourage staff retention with increased benefits
  - C. Create, implement and monitor a corporate code of ethics

Answer = B

“Guidance for Standards I–VII,” CFA Institute

2013 Modular Level I, Vol. 1, Reading 2, Standard I (A) Knowledge of the Law

Study Session 1–2–c

Recommend practices and procedures designed to prevent violations of the Code of Ethics and Standards of Professional Conduct.

B is correct because the offering of increased benefits to encourage staff retention would not necessarily stop the unethical behavior causing staff turnover and would effectively be asking the ethical employees to ignore the unethical behavior, thus being complicit in the behavior. Under Standard I (A) Knowledge of the Law, CFA charterholders and candidates must disassociate themselves from unethical behavior. Because the unethical business practices are seen as systemic, it would likely require them to leave the firm. Implementing a whistleblowing policy and adopting a corporate code of ethics would likely help to build a foundation of strong ethical behavior.

10. Henrietta Huerta, CFA, writes a weekly investment newsletter to market her services and obtain new asset management clients. A third party distributes the free newsletter on her behalf to those individuals on its mailing list. As a result, it is widely read by thousands of individual investors. The newsletter recommendations reflect most of Huerta’s investment actions. After completing further research on East-West Coffee Roasters, Huerta decides to change her initial buy recommendation to a sell. To avoid violating the CFA Institute Standards of Professional Conduct it would be *most* appropriate for Huerta to distribute the new investment recommendation to:
- A. newsletter recipients first.
  - B. asset management clients first.
  - C. newsletter recipients and asset management clients simultaneously.

Answer = B

“Guidance for Standards I–VII,” CFA Institute

2013 Modular Level I, Vol. 1, Reading 2, Section Standard III (A) Loyalty, Prudence, and Care  
Study Session 1–2–c

Recommend practices and procedures designed to prevent violations of the Code of Ethics and Standards of Professional Conduct.

B is correct because according to Standard III (A) Loyalty, Prudence and Care members and candidates must place their clients’ interests first before their own interests. The temptation may be to release the changed recommendation to newsletter recipients simultaneously with or even before the asset management clients to try to obtain new clients. However, to avoid violating Standard III (A) Loyalty, Prudence and Care, Huerta must ensure any change in an investment recommendation is first distributed to her asset management clients before any newsletter recipients, who are not necessarily clients (that is, they receive the newsletter for free from a third party distribution list).

11. Danielle Deschutes, CFA, is a portfolio manager who is part of a 10-person team that manages equity portfolios for institutional clients. A competing firm, South West Managers, asks Deschutes to interview for a position within its firm and to bring her performance history to the interview. Deschutes receives written permission from her current employer to bring the performance history of the stock portfolio with her. At the interview, she discloses that the performance numbers represent the work of her team and describes the role of each member. To bolster her credibility, Deschutes also provides the names of institutional clients and related assets constituting the portfolio. During her interview Deschutes *most likely* violated the CFA Institute Standards of Professional Conduct with regards to:
- A. the stock portfolio’s performance history.
  - B. her contribution to the portfolio’s returns.
  - C. providing details of the institutional clients.

Answer = C

“Guidance for Standards I–VII,” CFA Institute

2013 Modular Level I, Vol. 1, Reading 2, Standard III (D) Presentations, Standard III (E)  
Preservation of Confidentiality

Study Session 1–2–b

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

C is correct because Deschutes most likely violated Standard III (E) Preservation of Confidentiality by failing to preserve the confidentiality of client records when she disclosed specific details about clients in the equity portfolio.

12. When Abdullah Younis, CFA, was hired as a portfolio manager at an asset management firm two years ago, he was told he could allocate his work hours as he saw fit. At that time, Younis served on the board of three non-public golf equipment companies and managed a pooled investment fund for several members of his immediate family. Younis was not compensated for his board

service or for managing the pooled fund. Younis' investment returns attract interest from friends and co-workers who persuade him to include their assets in his investment pool. Younis recently retired from all board responsibilities and now spends more than 80% of his time managing the investment pool for which he charges non-family members a management fee. Younis has never told his employer about any of these activities. To comply with the CFA Institute Standards of Professional Conduct with regards to his business activities over the past two years, Younis would *least likely* be required to disclose which of the following to his employer?

- A. Board activities
- B. Family investment pool management
- C. Non-family member management fees

Answer = A

"Guidance for Standards I–VII," CFA Institute  
2013 Modular Level I, Vol. 1, Reading 2, Standard IV (B) Additional Compensation Arrangements, Standard VI (A) Disclosure of Conflicts  
Study Session 1–2–c  
Recommend practices and procedures designed to prevent violations of the Code of Ethics and Standards of Professional Conduct.

A is correct because golf equipment is a business independent of the financial services industry such that any board obligations would not likely be considered a conflict of interest requiring disclosure according to Standard IV (B) Additional Compensation Arrangements. Standard IV (B) requires members and candidates to obtain permission from their employer before accepting compensation or other benefits from third parties for the services that might create a conflict with their employer's interests. Managing investments for family and non-family members could likely create a conflict of interest for Younis' employer and should be disclosed to his employer.

13. Kim Klausner, CFA, monitors several hundred employees as head of compliance for a large investment advisory firm. Klausner has always ensured that his company's compliance program met or exceeded those of its competitors. Klausner, who is going on a long vacation, has delegated his supervisory responsibilities to Sue Chang. Klausner informs Chang that her responsibilities include detecting and preventing violations of any capital market rules and regulations, and the CFA Institute Code and Standards. Klausner *least likely* violated the CFA Institute Standards of Professional Conduct by failing to instruct Chang to also consider:
- A. firm policies.
  - B. legal restrictions.
  - C. industry standards.

Answer = C

"Guidance for Standards I–VII", CFA Institute  
2013 Modular Level I, Vol. 1, Reading 2, Standard IV (C) Responsibilities of Supervisors

Study Session 1–2–b

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

C is correct because the requirement under Standard IV(C) Responsibilities of Supervisors does not include any reference to industry standards. Standard IV(C) requires supervisors to instruct those subordinate to whom supervision is delegated about detection methods to prevent violations of laws, rules, regulations, firm policies and the CFA Institute Code and Standards.

14. Sheila Schleif, CFA, is an equity analyst at an investment banking division of Mokara Financial Group, a full service financial group. Schleif uses a multi-factor computer model to make stock recommendations for all clients of Mokara. Schleif discovers the model contains an error. If the error were corrected, her most recent buy recommendation communicated to all clients would change to a sell. Schleif corrects the error, changing the buy to a sell recommendation, and then simultaneously distributes via e-mail the revision to all investment banking clients who received the initial recommendation. A week later, Schleif sells the same shares she held in her personal portfolio. Concerning her actions, Schleif *most likely* violated which of the following CFA Institute Standards of Professional Conduct?
- A. Fair Dealing
  - B. Priority of Transactions
  - C. Diligence and Reasonable Basis

Answer = A

“Guidance for Standards I–VII,” CFA Institute  
2013 Modular Level I, Vol. 1, Reading 2, Standard III (B) Fair Dealing, Standard V (A) Diligence and Reasonable Basis, Standard VI (B) Priority of Transactions

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 because the analyst violated Standard III (B) Fair Dealing by selectively distributing the recommendation only to investment banking clients despite being responsible for making investment recommendations to all group clients. Schleif should distribute the change in recommendation to all clients who received the initial recommendation, not just those within the investment banking division of the group.

15. Rodney Rodrigues, CFA, is responsible for identifying professionals to manage specific asset classes for his firm. In selecting external advisers or sub advisers, Rodrigues reviews the adviser’s investment process, established code of ethics, the quality of the published return information, and the compliance and the integrated control framework of the organization. In completing his review, Rodrigues *most likely* violated the CFA Institute Standards of Professional Conduct with regards to his due diligence on:

- A. adherence to strategy.

- B. performance measures.
- C. internal control procedures.

Answer = A

“Guidance for Standards I–VII,” CFA Institute  
2013 Modular Level I, Vol. 1, Reading 2, Standard V (A) Selecting External Advisers and Subadvisers  
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 because Standard V (A) Diligence and Reasonable Basis applies to the level of review necessary in selecting an external adviser or subadviser and would at minimum include reviewing the adviser’s adherence to its stated strategy.

16. Jackson Barnes, CFA, works for an insurance company providing financial planning services to clients for a fee. Barnes has developed a network of specialists, including accountants, lawyers, and brokers who contribute their expertise to the financial planning process. Each of the specialists is an independent contractor. Each contractor bills Barnes separately for the work he or she performs, providing a discount based upon the number of clients Barnes has referred. What steps should Barnes take to be consistent with the CFA Institute Standards of Professional Conduct?
- A. Have his independent contractors approved by the insurance company
  - B. List the consideration he receives from the specialists on monthly client invoices
  - C. Inform potential clients about his arrangement with the contractors before they agree to hire him

Answer = C

“Guidance for Standards I–VII,” CFA Institute  
2013 Modular Level I, Vol. 1, Reading 2, Standard VI (C) Referral Fees  
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 because the referral arrangements should be disclosed to potential clients “before entry into any formal agreement for services” and not after the fact. This allows potential clients to consider whether the arrangement causes them any potential harm as a result of the arrangement (e.g., higher fees and potential conflicts of interests).

17. Millicent Plain has just finished taking Level II of the CFA examination. Upon leaving the examination site, she meets with four Level III candidates who also just sat for their exams. Curious about their examination experience, Plain asks the candidates how difficult the Level III exam was and how they did on it. The candidates say the essay portion of the examination was

much harder than they had expected and they were not able to complete all questions as a result. The candidates go on to tell Plain about broad topic areas that were tested and complain about specific formulas they had memorized what did not appear on the exam. The Level III candidates *least likely* violated the CFA Institute Standards of Professional Conduct by discussing:

- A. specific formulas.
- B. broad topic areas.
- C. the examination essays.

Answer = C

“Guidance for Standards I–VII,” CFA Institute  
2013 Modular Level I, Vol. 1, Reading 2, Standard VII (A) Confidential Program Information  
Study Session 1–2–b

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

C is correct because discussing the level of difficulty of the essay portion of the examination did not violate Standard VII (A) Conduct as Members and Candidates in the CFA Program. Standard VII (A) and the Candidate Pledge were violated by candidates revealing broad topical areas and formulas tested or not tested on the exam.

18. On a flight to Europe, Romy Haas, CFA, strikes up a conversation with a fellow passenger, Vincent Trujillo. When Trujillo learns Haas is in the investment profession, he asks about the CFA designation. Haas tells him the following about the CFA designation:

Statement 1: Individuals who have completed the CFA Program have the right to use the CFA designation.

Statement 2: The CFA designation is globally recognized which is why I use it as part of my firm’s name

Statement 3: CFA charterholders must satisfy membership requirements to continue using the designation.

In explaining the use of the CFA designation, Haas *least likely* violated the CFA Institute Standards of Professional Conduct concerning which of the following statements?

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

Answer = C

“Guidance for Standards I–VII,” CFA Institute  
2013 Modular Level I, Vol. 1, Reading 2, Standard VII (B) Reference to CFA Institute, the CFA Designation and the CFA Program  
Study Session 1–2–b

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

C is correct because according to Standard VII (B) Reference to CFA Institute, the CFA Designation, and the CFA Program this is an accurate statement concerning the CFA designation.

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

19. The nominal (quoted) annual interest rate on an automobile loan is 10%. The effective annual rate of the loan is 10.47%. The frequency of compounding periods per year for the loan is *closest* to:

- A. weekly.
- B. monthly.
- C. quarterly.

Answer = B

“The Time Value of Money,” Richard A. DeFusco, CFA, Dennis W. McLeavey, CFA, Jerald E. Pinto, CFA, and David E. Runkle, CFA  
2013 Modular Level I, Vol. 1, Reading 5, Section 3.3  
Study Session 2–5–c, d

Calculate and interpret the effective annual rate, given the stated annual interest rate and the frequency of compounding. Solve time value of money problems for different frequencies of compounding:

B is correct. Use the formula for effective annual rate:

$$\text{EAR} = (1 + \text{Periodic interest rate})^m - 1.$$

Iteratively substitute the possible frequency of compounding until the EAR is 10.47%.

For weekly compounding,  $(1 + 0.10/52)^{52} - 1 = 0.10506 = 10.51\%$

For monthly compounding,  $(1 + 0.10/12)^{12} - 1 = 0.10471 = 10.47\%$

For quarterly compounding,  $(1 + 0.10/4)^4 - 1 = 0.10381 = 10.38\%$

Thus, the correct answer is monthly compounding.

20. Equity return series are *best* described as, for the most part:

- A. platykurtotic (less peaked than a normal distribution).
- B. leptokurtotic (more peaked than a normal distribution).
- C. mesokurtotic (identical to the normal distribution in peakedness).

Answer = B

“Statistical Concepts and Market Returns,” Richard A. DeFusco, CFA, Dennis W. McLeavey, CFA, Jerald E. Pinto, CFA, and David E. Runkle, CFA  
2013 Modular Level I, Vol. 1, Reading 7, Section 9

Study Session 2–7–I

Explain measures of sample skewness and kurtosis.

B is correct. Most equity return series have been found to be leptokurtotic.

21. The following 10 observations are a sample drawn from an approximately normal population:

Observation	1	2	3	4	5	6	7	8	9	10
Value	-3	-11	3	-18	18	20	-6	9	2	-16

The sample standard deviation is *closest* to:

- A. 11.92.
- B. 12.50.
- C. 13.18.

Answer = C

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

2013 Modular Level I, Vol. 1, Reading 7, Section 7.3.2, Example 12

Study Session 2–7–g

Calculate and interpret 1) a range and a mean absolute deviation and 2) the variance and standard deviation of a population and of a sample.

C is correct. The sample mean is:

$$\bar{X} = \sum_i^n X_i / n = (-3 - 11 + 3 - 18 + 18 + 20 - 6 + 9 + 2 - 16) / 10 = -2.00 / 10 = -0.20.$$

The sample variance is:

$$s^2 = \sum_i^n (X_i - \bar{X})^2 / (n - 1).$$

The sample standard deviation is the (positive) square root of the sample variance.

Value	Difference vs. mean [value - (-0.20)]	Difference squared
-3	-2.8	7.84
-11	-10.8	116.64
3	3.2	10.24
-18	-17.8	316.84
18	18.2	331.24
20	20.2	408.04
-6	-5.8	33.64
9	9.2	84.64
2	2.2	4.84
-16	-15.8	249.64
	Sum of squared differences	1563.6
	Divided by n-1	173.7333333
	Square root	13.18079411

22. Event X and event Y are independent events. The probability of X is 0.2 [ $P(X) = 0.2$ ] and the probability of Y is 0.5 [ $P(Y) = 0.5$ ]. The joint probability of X and Y [ $P(X, Y)$ ] is *closest* to:

- A. 0.1.
- B. 0.3.
- C. 0.7.

Answer = A

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

2013 Modular Level I, Vol. 1, Reading 8, Section 2, Example 4

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

A is correct. Given that X and Y are independent, their joint probability is equal to the product of their individual probabilities. In this problem, we calculate  $0.2 \times 0.5 = 0.1$ .

23. Assume that a stock’s price over the next two periods is as shown below.

Time = 0	Time = 1	Time = 2
$S_0 = 80$	$S_u = 88$	$S_{uu} = 96.8$
	$S_d = 72$	$S_{ud,du} = 79.2$
		$S_{dd} = 64.8$

The initial value of the stock is \$80. The probability of an up move in any given period is 75% and the probability of a down move in any given period is 25%. Using the binomial model, the probability that the stock’s price will be \$79.20 at the end of two periods is *closest* to:

- A. 18.75%.
- B. 37.50%.
- C. 56.25%.

Answer = B

“Common Probability Distributions,” Richard A. DeFusco, CFA, Dennis W. McLeavey, CFA, Jerald E. Pinto, CFA, and David E. Runkle, CFA

2013 Modular Level I, Vol. 1, Reading 9, Section 2.2, Figure 2

Study Session 3–9–, g

Calculate and interpret probabilities, given the discrete uniform and the binomial distribution functions.

Construct a binomial tree to describe stock price movement.

B is correct. Across two periods, there are four possibilities:

- an up move followed by an up move (\$96.8 end value),
- an up move followed by a down move (\$79.2 end value),

- a down move followed by an up move (\$79.2 end value), and
- a down move followed by a down move (\$64.8 end value).

The probability of an up move followed by a down move is  $0.75 \times 0.25 = 0.1875$ .

The probability of a down move followed by an up move is  $0.25 \times 0.75$  also = 0.1875. Both of these sequences result in an end value of \$79.2.

Therefore, the probability of an end value of \$79.2 is  $(0.1875 + 0.1875) = 37.5\%$ .

24. Which of the following statements of null and alternative hypotheses requires a two-tailed test?

- A.  $H_0: \theta = \theta_0$  versus  $H_a: \theta \neq \theta_0$
- B.  $H_0: \theta \leq \theta_0$  versus  $H_a: \theta > \theta_0$
- C.  $H_0: \theta \geq \theta_0$  versus  $H_a: \theta < \theta_0$

Answer = A

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

2013 Modular Level I, Vol. 1, Reading 11, Section 2

Study Session 3– 11– a

Define a hypothesis, describe the steps of hypothesis testing, describe and interpret the choice of the null and alternative hypotheses, and distinguish between one-tailed and two-tailed tests of hypotheses.

A is correct. When the null and alternative hypotheses are of the form:  $H_0: \theta = \theta_0$  versus  $H_a: \theta \neq \theta_0$ , the correct approach is to use a two-tailed test.

25. A stock is declining in price and reaches a price range wherein buying activity is sufficient to stop the decline. This is *best* described as a:

- A. support level.
- B. resistance level.
- C. change in polarity point.

Answer = A

“Technical Analysis,” Barry M. Sine, CFA and Robert A. Strong, CFA

2013 Modular Level I, Vol. 1, Reading 12, Section 3.2

Study Session 3– 12– c

Explain the uses of trend, support, resistance lines, and change in polarity.

A is correct Support level is defined to be “a low price range in which buying activity is sufficient to stop the decline in price.”

26. You are given the following discrete uniform probability distribution of gross profits from purchase of an option:

Profit	Cumulative Distribution Function
\$0	0.2
\$1	0.4
\$2	0.6
\$3	0.8
\$4	1.0

The probability of a profit greater than or equal to \$1 and less than or equal to \$4 is *closest* to:

- A. 0.4.
- B. 0.6.
- C. 0.8.

Answer = C

“Common Probability Distributions,” Richard A. DeFusco, CFA, Dennis W. McLeavey, CFA, Jerald E. Pinto, CFA, and David E. Runkle, CFA

2013 Modular Level I, Vol. 1, Reading 9, Section 2.1

Study Session 3–9–d

Calculate and interpret probabilities for a random variable, given its cumulative distribution function.

C is correct. There are two ways to find  $P(1 \leq X \leq 4)$ :

- 1) Find the sum of four probabilities:  $P(1)$ ,  $P(2)$ ,  $P(3)$ , and  $P(4)$ ,  
 $0.2 + 0.2 + 0.2 + 0.2 = 0.8$ .

OR

- 2) Calculate the probability as the difference between the two values of the cumulative distribution function.

In this case,  $F(4) = P(X \leq 4) = 1.0$  and  $F(1) = P(X \leq 1) = 0.2$ .

Therefore,  $P(1 \leq X \leq 4) = 1.0 - 0.2 = 0.8$ .

27. A sample of 240 managed portfolios has a mean annual return of 0.11 and a standard deviation of returns of 0.23. The estimate of the standard error of the sample mean is *closest* to:

- A. 0.00096.
- B. 0.00710.
- C. 0.01485.

Answer = C

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

2013 Modular Level I, Vol. 1, Reading 10, Section 3.1

Study Session 3– 10– f

Calculate and interpret the standard error of the sample mean.

C is correct.

For a sample, the standard error of the mean is  $s = \frac{\sigma}{\sqrt{n}}$ .

Here,  $\frac{0.23}{\sqrt{240}} = 0.01485$ .

28. An analyst wants to estimate the return on the S&P 500 Index for the current year using the following data and assumptions:

- Sample size = 50 securities from the index
- Mean return for those stocks in the sample for the previous year = 0.114
- Variance = 0.0529
- The reliability factor for a 95% confidence interval with unknown population variance and sample size greater than 30 is  $z_{0.025} = 1.96$ .

If he assumes that the S&P return this year will be the same as it was last year, which of the following is the *best* estimate of the 95% confidence interval for this year's S&P return?

- A. –0.11600 to +0.34400
- B. +0.05024 to +0.17775
- C. +0.06110 to +0.16690

Answer = B

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

2013 Modular Level I, Vol. 1, Reading 10, Section 4.2

Study Session 3–10–j

Calculate and interpret a confidence interval for a population mean, given a normal distribution with (1) a known population variance, (2) an unknown population variance, or (3) an unknown variance and a large sample size.

B is correct. The reliability factor for a 95% confidence interval with unknown population variance and sample size greater than 30 is  $z_{0.025} = 1.96$ .

The confidence interval estimate is  $\bar{X} \pm z_{0.025} \left( \frac{s}{\sqrt{n}} \right)$ .

With sample variance of 0.0529,  $s = 0.23$ . The estimated interval is

$$0.114 \pm 1.96 \left( \frac{0.23}{\sqrt{50}} \right) = 0.114 \pm 1.96(0.0327) = 0.114 \pm 0.0637 = +0.05024 \text{ to } +0.17775.$$

29. The liquidity premium can be *best* described as compensation to investors for the:

- A. risk of loss relative to an investment's fair value if the investment needs to be converted to cash quickly.
- B. increased sensitivity of the market value of debt to a change in market interest rates as maturity is extended.

C. possibility that the borrower will fail to make a promised payment at the contracted time and in the contracted amount.

Answer = A

“The Time Value of Money,” Richard A. DeFusco, CFA, Dennis W. McLeavey, CFA, Jerald E. Pinto, CFA, and David E. Runkle, CFA  
2013 Modular Level I, Vol. 1, Reading 5, Section 2  
Study Session 2–5–b

Explain an interest rate as the sum of a real risk-free rate and premiums that compensate investors for bearing distinct types of risk.

A is correct. “The liquidity premium compensates investors for the risk of loss relative to an investment’s fair value if the investment needs to be converted to cash quickly.”

30. The following table shows the volatility of a series of funds that belong to the same peer group, ranked in ascending order:

	Volatility (%)			Volatility (%)
Fund 1	9.81		Fund 8	13.99
Fund 2	10.12		Fund 9	14.47
Fund 3	10.84		Fund 10	14.85
Fund 4	11.33		Fund 11	15.00
Fund 5	12.25		Fund 12	17.36
Fund 6	13.39		Fund 13	17.98
Fund 7	13.42			

The value of the first quintile is *closest* to:

- A. 10.70%.
- B. 10.84%.
- C. 11.09%

Answer = A

“Statistical Concepts and Market Returns,” Richard A. DeFusco, CFA, Dennis W. McLeavey, CFA, Jerald E. Pinto, CFA, and David E. Runkle, CFA  
2013 Modular Level I, Vol. 1, Reading 7, Section 6.1  
Study Session 2–7–f

Calculate and interpret quartiles, quintiles, deciles, and percentiles.

A is correct. First, find the position of the first quintile with the following formula:

$$L_y = (n + 1) \times (y / 100),$$

where

$y$  is the percentage point at which we are dividing the distribution. In our case we have  $y = 20$ , which corresponds to the 20<sup>th</sup> percentile (first quintile);

$n$  is the number of observations (funds) in the peer group. In our case we have  $n = 13$ ;

$L_{20}$  corresponds to the location of the 20<sup>th</sup> percentile (first quintile).  
 $L_{20} = (13 + 1) \times (20/100) = 2.80$ .

Therefore, the location of the first quintile is between the volatility of Fund 2 and Fund 3 (because they are ranked in ascending order).

Then, use linear interpolation to find the approximate value of the first quintile:

$$P_{20} \approx X_2 + (2.80 - 2) \times (X_3 - X_2),$$

where

$X_2$  is the volatility of Fund 2

$X_3$  is the volatility of Fund 3

$P_{20}$  is the approximate value of the first quintile

$$P_{20} \approx 10.12\% + (2.80 - 2) \times (10.84\% - 10.12\%) = 10.70\%$$

31. The most recent returns of a fund are as follow:

Year	Return (%)
2007	-20.60
2008	15.00
2009	0.50
2010	9.80
2011	4.60

The mean absolute deviation of returns for the fund is *closest* to:

- A. 9.53%.
- B. 11.91%.
- C. 13.69%.

Answer = A

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

2013 Modular Level I, Vol. 1, Reading 7, Section 7.2 (Example 10)

Study Session 2–7–g

Calculate and interpret (1) a range and a mean absolute deviation and (2) the variance and standard deviation of a population and of a sample.

A is correct. The mean absolute deviation (MAD) for a sample is calculated as follow:

$$MAD = \frac{\sum_{i=1}^n |X_i - \bar{X}|}{n},$$

where

$X_i$  is the return of the fund during year  $i$

$\bar{X}$  is the mean of the returns of the sample

$n$  is the number of returns in the sample

$i$  is the index for the year

In this problem:

$$\text{Mean: } \bar{X} = (-20.60\% + 15.00\% + 0.50\% + 9.80\% + 4.60\%) / 5 = 1.86\%$$

$$MAD = (|-20.60\% - 1.86\%| + |15.00\% - 1.86\%| + |0.50\% - 1.86\%| + |9.80\% - 1.86\%| + |4.60\% - 1.86\%|) / 5 = 47.64\% / 5 = 9.53\%$$

Deviations from Mean	Absolute Deviation
$ -20.60\% - 1.86\% $	22.46
$ 15.00\% - 1.86\% $	13.14
$ 0.50\% - 1.86\% $	1.36
$ 9.80\% - 1.86\% $	7.94
$ 4.60\% - 1.86\% $	2.74
Total	47.64
Mean = $47.64 \div 5$	9.53%

32. Consider the following information in relation to a portfolio composed of Fund A and Fund B:

	Fund A	Fund B
Portfolio weights (%)	70	30
Expected returns (%)	10	16
Standard deviations (%)	7	13
Correlation between the returns of Fund A and Fund B	0.80	

The portfolio standard deviation of returns is *closest* to:

- A. 7.38%.
- B. 8.35%.
- C. 8.80%.

Answer = B

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

2013 Modular Level I, Vol. 1, Reading 8, Section 3

Study Session 2–8–k, I

Calculate and interpret covariance and correlation.

Calculate and interpret the expected value, variance, and standard deviation of a random variable and of returns on a portfolio.

B is correct. First, calculate the covariance between Fund A and Fund B given the standard deviation of returns and the correlation between the two funds:

$$\text{Cov}(R_A, R_B) = \rho(R_A, R_B)\sigma(R_A)\sigma(R_B),$$

where

$\sigma(R_A) = 7\%$ . This is the standard deviation of returns of fund A

$\sigma(R_B) = 13\%$ . This is the standard deviation of returns of fund B

$\rho(R_A, R_B) = 0.80$ . This is the correlation between the returns of Fund A and Fund B.

$$\text{Cov}(R_A, R_B) = 0.80 \times 7\% \times 13\% = 0.00728.$$

Then calculate the portfolio standard deviation of returns as follow:

$$\sigma(R_{\text{Portfolio}}) = \sqrt{W_A^2\sigma^2(R_A) + W_B^2\sigma^2(R_B) + 2W_AW_B\text{Cov}(R_A, R_B)},$$

where

$W_A = 70\%$ . This is the weight of Fund A in the portfolio

$W_B = 30\%$ . This is the weight of Fund B in the portfolio.

$$\sigma(R_{\text{Portfolio}}) = \sqrt{0.70^2 \times 0.07^2 + 0.30^2 \times 0.13^2 + 2 \times 0.70 \times 0.30 \times 0.00728} = 8.35\%$$

Alternatively, use correlation directly in the formula for portfolio standard deviation:

$$\sigma_{R_{\text{Portfolio}}} = [W_A^2 \sigma_{RA}^2 + W_B^2 \sigma_{RB}^2 + 2W_A W_B \rho_{RA, RB} \sigma_{RA} \sigma_{RB}]^{0.5}$$

$$\sigma_{R_{\text{Portfolio}}} = [(0.70)^2 \times 0.07^2 + 0.30^2 \times 0.13^2 + 2 \times 0.70 \times 0.30 \times 0.80 \times 0.07 \times 0.13]^{0.5} = 8.35\%$$

**Questions 33 through 44 relate to Economics**

33. A college student's monthly demand for pizza is given by the equation:

$Q^D_{\text{Pizza}} = 11 - 0.70 P_{\text{Pizza}} + 0.009 I - 0.20 P_{\text{Cola}}$	
where	$Q^D_{\text{Pizza}}$ is the number of pizzas ordered per month
	$P_{\text{Pizza}}$ is the price of a pizza
	$I$ is her monthly food budget
	$P_{\text{Cola}}$ is the price of cola per bottle

The student's current monthly food budget is \$500, the price of a pizza is \$5 and the price of cola is \$1.25/bottle. If the student's monthly food budget were to increase to \$700, the slope of her demand curve for pizza would be *closest* to:

- A. -2.42.
- B. -1.43.
- C. -0.70.

Answer = B

"Demand and Supply Analysis: Introduction," Richard V. Eastin and Gary L. Arbogast, CFA 2013 Modular Level I, Vol. 2, Reading 13, Section 3.2, Example 2.

Study Session 4-13-f

Calculate and interpret individual and aggregate demand, inverse demand and supply functions and interpret individual and aggregate demand and supply curves.

B is correct.

<b>Initial Price Quantity Relationship</b>
$Q^D_{\text{Pizza}} = 11 - 0.70 P_{\text{Pizza}} + 0.009 \times \$500 - 0.20 \times 1.25 = 15.25 - 0.70 P_{\text{Pizza}}$
<b>Resulting Demand Curve:</b> $P_{\text{Pizza}} = 21.79 - 1.43 Q^D_{\text{Pizza}}$
<b>Price Quantity Relationship at New Income Level</b>
$Q^D_{\text{Pizza}} = 11 - 0.70 P_{\text{Pizza}} + 0.009 \times \$700 - 0.20 \times 1.25 = 17.05 - 0.70 P_{\text{Pizza}}$
<b>Resulting Demand Curve:</b> $P_{\text{Pizza}} = 24.36 - 1.43 Q^D_{\text{Pizza}}$
The slope of her demand curve for pizza will still be <b>-1.43</b> even with the higher income of \$700 because the increase in income has shifted the demand curve outward and upward but has not affected its slope.

34. Partial information on three baskets containing goods A and B is given in the table below. The marginal rate of substitution of B for A, ( $MRS_{BA}$ ), at Basket 2 is also provided.

Basket	Units of A	Units of B	$MRS_{BA}$
1	?	30	
2	50	35	4.0
3	40	40	

A consumer's indifference curves are strictly convex and he claims that he is indifferent between Baskets 2 and 3. If he is also indifferent between Baskets 1 and 3, the number of units of A in basket 1 is *most likely*:

- A. equal to 60.
- B. less than 60.
- C. greater than 60.

Answer = C

“Demand and Supply Analysis: Consumer Demand,” Richard V. Eastin and Gary L. Arbogast, CFA 2013 Modular Level I, Vol. 2, Reading 14, Section 3.3, Example 2  
Study Session 4–14–a, b

Describe consumer choice theory and utility theory.

Describe the use of indifference curves, opportunity sets, and budget constraints in decision making.

C is correct. Because the consumer is indifferent between all three baskets, they must all fall on the same indifference curve. The  $MRS_{BA}$  at Basket 2 is 4, meaning that the slope of the indifference curve at that point is  $-4$ , hence  $\Delta A/\Delta B = -4 = \frac{(A-50)}{(30-35)}$ : Solve for A = 70: **greater than 60.**

35. Three firms operate under perfect competition, producing 900 units of the same product but using different production technologies. Each company's cost structure is indicated below:

Company	X	Y	Z
Total Variable Costs	\$2,700	\$3,600	\$4,500
Total Fixed Costs	<u>2,700</u>	<u>1,800</u>	<u>900</u>
Total Costs	\$5,400	\$5,400	\$5,400

Which of the following statements is *most* accurate? If the unit selling price is:

- A. \$6.00, all firms should exit the market in the long run.
- B. \$3.50, firm X should continue to operate in the short run, but firms Y and Z should shut down production.
- C. \$4.50, all firms should continue to operate in the short run, but exit the market in the long run if these conditions are expected to persist.

Answer = B

“Demand and Supply Analysis: The Firm,” Gary L. Arbogast, CFA and Richard V. Eastin

2013 Modular Level I, Vol. 2, Reading 15, Section 3.1.3, Example 6  
 Study Session 4–15–d, e, h

Calculate and interpret total, average, marginal, fixed, and variable costs.  
 Determine and describe breakeven and shutdown points of production.  
 Distinguish between short-run and long-run profit maximization.

B is correct.

Revenue–Cost Relationship	Short-Run Decision	Long-Term Decision
$TR \geq TC$	Stay in market	Stay in market
$TR > TVC$ but $TR < TFC + TVC$	Stay in market	Exit market
$TR < TVC$	Shut down production to zero	Exit market
where $TR$ = Total revenue;		
and $TC$ = Total costs; $TVC$ = Total variable costs; $TFC$ = Total fixed costs		
Hence, if the selling price is \$3.50, total revenue for all firms will be \$3.50/unit $\times$ 900 units = \$3,150. Only firm X's variable costs are covered, and it should continue operating, while firms Y and Z should immediately shut-down production.		

36. The following data pertain to the total output in units and average selling prices in an economy that produces only two products, X and Y:

Year	Product X		Product Y	
	Output (units)	Selling Price/unit	Output (units)	Selling Price/unit
2011	2,800	€9	2,000	€47
2012	3,000	€11	1,800	€52

If the implicit price deflator for GDP in 2011 was 100, for 2012 it is *closest* to:

- A. 106.2.
- B. 106.8.
- C. 113.4.

Answer = C

"Aggregate Output, Prices, and Economic Growth," Paul R. Kutasovic, CFA and Richard G. Fritz  
 2013 Modular Level I, Vol. 2, Reading 17, Section 2.12, Example 2

Study Session 5–17–a, c

Calculate and explain gross domestic product (GDP) using expenditure and income approaches.  
 Compare nominal and real GDP and calculate and interpret the GDP deflator.

C is correct.

	Nominal GDP	Real GDP
2011	$2,800 \times 9 + 2,000 \times 47 = 119,200$	119,200
2012	$3,000 \times 11 + 1,800 \times 52 = 126,600^A$	$3,000 \times 9 + 1,800 \times 47 = 111,600^B$
GDP Deflator = $GDP\ Deflator = (Nominal\ GDP) / (Real\ GDP)$		

	$\times 100 = \frac{126,600}{111,600} \times 100 = \underline{\underline{113.4}}$
	$= \frac{\text{Value of current output at current prices}}{\text{Value of current output at base year prices}} \times 100$
<sup>A</sup>	Value of current output at current prices
<sup>B</sup>	Value of current output at base year prices

37. Which of the following would be *most* useful as a leading indicator to signal the start of an economic recovery?

- A. An increase in aggregate real personal income (less transfer payments)
- B. A decrease in average weekly initial claims for unemployment insurance
- C. The narrowing of the spread between the 10-year Treasury yield and the federal funds rate

Answer = B

“Understanding Business Cycles,” Michele Gambera, CFA, Milton Ezrati, and Bolong Cao, CFA 2013 Modular Level I, Vol. 2, Reading 18, Section 5.1, Exhibit 7

Study Session 5-18-i, j

Describe economic indicators, including their uses and limitations.

Identify the past, current, or expected future business cycle phase of an economy based on economic indicators.

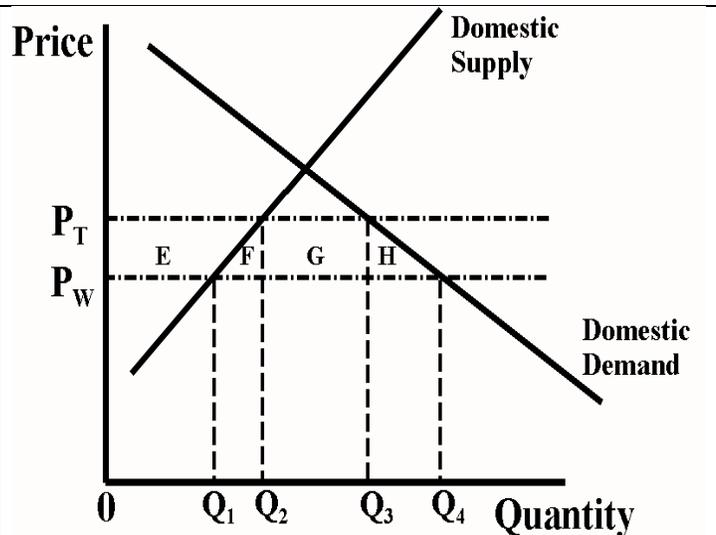
B is correct. Average weekly initial claims for unemployment insurance is a leading indicator of economic activity and a decrease in it is an indicator of rehiring at the start of a recovery.

38.

The diagram to the right shows the domestic demand and supply curves for a country that imports a commodity, where  $P_W$  is its world price and  $P_T$  is its domestic price after the imposition of a tariff.

The reduction in the net national welfare of this country as a result of the tariff is *best* described by the area(s):

- A. E.
- B. G.
- C. F+H.



Answer = C

“Demand and Supply Analysis: Introduction,” Richard V. Eastin and Gary L. Arbogast, CFA  
2013 Modular Level I, Vol. 2, Reading 13, Sections 3.9, 3.10

“International Trade and Capital Flows,” Usha Nair-Reichert, PhD and Daniel Robert Witschi, PhD, CFA

2013 Modular Level I, Vol. 2, Reading 20, Sections 3.1, Exhibit 12

Study Session 4–13–i, j, 6–20–e

Calculate and interpret consumer surplus, producer surplus, and total surplus.

Analyze the effects of government regulation and intervention on demand and supply.

Compare types of trade and capital restrictions and their economic implications.

C is correct. The loss in consumer surplus because of higher prices is represented by area E+F+G+H. This exceeds the gains from producer surplus (E) and government revenues on imports (G). Hence, the net welfare effect to the country is a deadweight loss of  $[E + F + G + H] - [E] - [G] = \mathbf{F+H}$ .

39. The International Bank for Reconstruction and Development *most likely*:

A. provides low interest rate loans to developing countries.

B. lends foreign currencies on a temporary basis to address balance of payment issues.

C. stands ready to lend foreign currencies to member countries during periods of significant external deficits.

Answer = A

“International Trade and Capital Flows,” Usha Nair-Reichert, PhD and Daniel Robert Witschi, PhD, CFA

2013 Modular Level 1, Vol. 2, Reading 20, Section 5.2

Study Session 6–20–i

Describe functions and objectives of the international organizations that facilitate trade, including the World Bank, the International Monetary Fund, and the World Trade Organization (WTO).

A is correct. Closely affiliated with The World Bank Group, the International Bank for Reconstruction and Development (IBRD) provides low or no-interest loans and grants to developing countries that have unfavorable or no access to international credit markets.

40. An investor examines the following rate quotes for the Brazilian real and the Australian dollar:

Spot rate BRL/AUD	2.1128	BRL 1-year interest rate	4.1%
Forward rate BRL/AUD	2.1388	AUD 1-year interest rate	3.1%

If the investor shorts BRL500,000 he will achieve a risk-free arbitrage profit (in BRL) *closest to*:

A. –6,327.

B. 1,344.

C. 6,405.

Answer = B

“Currency Exchange Rates,” William A. Barker, CFA, Paul D. McNelis, and Jerry Nickelsburg  
2013 Modular Level I, Vol. 2, Reading 21, Section 3.3

Study Session 6–21–f, g

Explain the arbitrage relationship between spot rates, forward rates and interest rates.

Calculate and interpret a forward rate consistent with a spot rate and the interest rate in each currency.

B is correct. If the right side of the following equation is greater than the left, an arbitrage opportunity exists.

$$(1 + i_d) = S_{f/d} (1 + i_f) \left( \frac{1}{F_{f/d}} \right)$$

$S_{f/d}$  = Spot rate: number of units of foreign currency (price currency) per one unit of domestic currency

$F_{f/d}$  = Forward rate: number of units of foreign currency (price currency) per one unit of domestic currency

$i_d$  = Domestic interest rate

$i_f$  = Foreign interest rate

The arbitrage profit is the right side of the equation minus the left side.

Left side of equation: BRL500,000 × (1 + 0.041) = BRL520,500.

Right Side:

Step One	BRL500,000 × (1/2.1128AUD/BRL) = AUD236,653
Step Two	AUD236,653 × (1.031) = AUD243,989
Step Three	AUD243,989 × 2.1388 = BRL521,844

Arbitrage profit = BRL521,844 (right side above) – BRL520,500 (left side above) = 1,344.

41. The demand and supply functions for a leading smartphone are furnished below:

$$Q_{sp}^d = 1,000 - 20P_{sp} + 2I; \quad Q_{sp}^s = -200 + 50P_{sp} - 80W; \quad \text{where,}$$

$Q_{sp}^d$  = Quantity demanded in number of units

$Q_{sp}^s$  = Quantity supplied in number of units

$P_{sp}$  = Price per smart phone in \$

$I$  = Household income in \$ per year

$W$  = Wage rate in \$ per hour

Currently, the firm has priced the smartphone at \$250 per unit. If the wage is \$10 per hour and the household income is \$9,500 per year, the smartphone’s equilibrium price is *closest* to:

A. \$250.

B. \$300.

C. \$425.

Answer = B

“Demand and Supply Analysis: Introduction,” Richard V. Eastin and Gary L. Arbogast, CFA  
2013 Modular Level I, Vol. 2, Reading 13, Section 3.6, Example 6

Study Session 4-13-d

Describe the process of aggregating demand and supply curves, the concept of equilibrium, and mechanisms by which markets achieve equilibrium.

B is correct. Market equilibrium occurs when quantity demanded is equal to quantity supplied, so set

$Q_{sp}^d = Q_{sp}^s$  after inserting the given values for I and W. Next, solve for  $P_{sp}$ :

$$\begin{aligned} 1,000 - 20P_{sp} + 2(9,500) &= -200 + 50P_{sp} - 80(10) \\ -20P_{sp} - 50P_{sp} &= -200 - 800 - 1,000 - 19,000 \\ -70P_{sp} &= -21,000; P_{sp} = -21,000/-70 = \$300. \end{aligned}$$

42. A firm in a perfectly competitive environment has its total costs equal to total revenue and marginal costs greater than marginal revenue. Given this, which of the following strategies is *most* appropriate? The firm should:

- A. shut down in the short run and exit in the long run.
- B. increase its level of production to enter profit territory.
- C. decrease its level of production to enter profit territory.

Answer = C

“Demand and Supply Analysis: The Firm,” Gary L. Arbogast, CFA and Richard V. Eastin  
2013 Modular Level I, Vol. 2, Reading 15, Section 3.1.3 and 3.1.4, Exhibits 18 and 26

Study Session 4-15-d, e

Calculate and interpret total, average, marginal, fixed, and variable costs.

Determine and describe breakeven and shutdown points of production.

C is correct. A firm in a perfectly competitive environment with total costs equal to total revenue and marginal costs greater than marginal revenue is operating at the upper breakeven point. Therefore, it should decrease the level of production to enter profit territory.

43. The following data are for a basket of three consumption goods used to measure the rate of inflation:

Goods	December 2010		August 2011	
	Quantity	Price	Quantity	Price
5 lb bag sugar	150 bags	\$3.12	180 bags	\$2.92
5 lb bag flour	800 bags	\$2.18	750 bags	\$3.12
Frozen pizza (each)	250	\$2.90	250	\$3.00

Using the consumption basket for August 2011, the Paasche index is *closest* to:

- A. 123.7.
- B. 124.6.
- C. 125.4.

Answer = A

“Understanding Business Cycles,” Michele Gambera, CFA, Milton Ezrati, and Bolong Cao, CFA  
2013 Modular Level I, Vol. 2, Reading 18, Section 4.2.2

Study Session 5-18-f, g

Explain the construction of indices used to measure inflation.

Compare inflation measures, including their uses and limitations.

A is correct. The Paasche index uses the current composition of the basket.

$$\text{Paasche Index} = \frac{180 \times 2.92 + 750 \times 3.12 + 250 \times 3.00}{180 \times 3.12 + 750 \times 2.18 + 250 \times 2.90} \times 100 = 123.75$$

44. Which of the following is *most* consistent with real business cycle (RBC) models? The arguments and recommendations of RBC models suggest that:

- A. monetary variables have a major impact on GDP growth.
- B. persons are unemployed because their asking wages are too high.
- C. governments should intervene when the economy is in contraction.

Answer = B

“Understanding Business Cycles,” Michele Gambera, CFA, Milton Ezrati, and Bolong Cao, CFA  
2013 Modular Level I, Vol. 2, Reading 18, Section 3.3.1

Study Session 5-18-c

Describe theories of the business cycle.

B is correct. As suggested particularly by the earliest RBC models, a person is unemployed because he or she is asking for wages that are too high, or in other words, this person’s utility function is maximized by having more leisure (e.g., free time to visit museums, watch games on TV, and enjoy time with friends) and less consumption (which could be increased by giving up some leisure and finding a job).

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

45. The current ratio for an industry is 3.2. Data for a firm in the industry is presented below:

As at December 31	£ '000s
Cash	200
Accounts receivable	350
Inventory	1,250
Accounts payable	300
Taxes payable	200
Installment loan payable, due in three equal annual payments on June 30.	600

Using the current ratio, when compared with the industry, the firm is *best* described as being:

- A. as liquid.
- B. less liquid.
- C. more liquid.

Answer = B

“Understanding Balance Sheets,” Elaine Henry, CFA and Thomas R. Robinson, CFA  
2013 Modular Level I, Vol. 3, Section 7.2, Exhibit 19, Example 8

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

2013 Modular Level I, Vol. 4, Reading 40, Sections 2.2.

Study Session 8-26-i, 11-40-b

Calculate and interpret liquidity and solvency ratios.

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

B is correct. Current ratio = Current assets ÷ Current liabilities

Current assets:	£ '000s	Current liabilities:	£ '000s
Cash	200	Accounts payable	300
Accounts receivable	350	Taxes payable	200
Inventory	<u>1,250</u>	Loan payable, first installment	<u>200</u>
Total	1,800	Total	700

The higher the current ratio the more liquid the company. Thus, with a current ratio of 2.6 (1,800 ÷ 700), the company is less liquid than the industry, with a current ratio of 3.2.

46. A company operating in a highly fragmented and competitive industry reported an increase in ROE over the prior year. Which of the following reasons for the increase in ROE is *least likely* to be sustainable? The company:

- A. increased the prices of its product significantly.
- B. decided to make greater use of long-term borrowing capacity.
- C. implemented a new IT system allowing it to reduce working capital levels as a percentage of assets.

Answer = A

“Understanding Income Statements,” Elaine Henry, CFA and Thomas R. Robinson, CFA  
2013 Modular Level I, Vol. 3, Reading 25, Section 5.3

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

2013 Modular Level I, Vol.4, Reading 28, Section 4.6.2

“Introduction to Industry and Company Analysis,” Patrick W. Dorsey, CFA, Anthony M. Fiore, CFA and Ian Rossa O’Reilly, CFA

2013 Modular Level I, Vol.5, Reading 50, Section 5.1.2

Study Sessions: 8-25-e, 8-28-d, 14-50-g

Describe the financial reporting treatment and analysis of non-recurring items (including discontinued operations, extraordinary items, and unusual or infrequent items) and changes in accounting standards.

Demonstrate the application of Dupont analysis of return on equity, and calculate and interpret the effects of changes in its components.

Explain the effects of barriers to entry, industry concentration, industry capacity, and market share stability on pricing power and return on capital.

A is correct.

$$ROE = \frac{Net\ Income}{Revenues} \times \frac{Revenues}{Average\ total\ assets} \times \frac{Average\ total\ assets}{Average\ shareholder's\ equity}$$

An increase in price is not sustainable in a fragmented and competitive industry. Fragmented industries tend to be highly price competitive because of the need to increase market share and to undercut prices in an attempt to steal share.

47. In 2011, a software company recorded unearned revenue related to a software license that it will recognize as revenue during 2012. Ignoring income taxes, this recognition of the software revenue will *most likely* have which of the following effects on cash from operations in 2012?

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

Answer = A

“Financial Reporting Mechanics,” Thomas R. Robinson, CFA, Jan Hendrik van Greuning, CFA, Karen O’Connor Rubsam, CFA, Elaine Henry, CFA, and Michael A. Broihahn, CFA  
2013 Modular Level I, Vol.3, Reading 23, Section 5.1

“Understanding Cash Flow Statements,” Elaine Henry, CFA, Thomas R. Robinson, CFA, Jan Hendrik van Greuning, CFA, and Michael A. Broihahn, CFA  
 2013 Modular Level I, Vol.3, Reading 27, Section 3.1, 3.2.5  
 Study Session 7–23–e, 8–27–e

Explain the relationships among the income statement, balance sheet, statement of cash flows, and statement of owners’ equity.

Describe how the cash flow statement is linked to the income statement and balance sheet.

A is correct. The company received the cash in 2011 when it recorded the unearned revenue and it was a part of the cash from operations in that year. In 2012, the revenue is earned but there is no cash exchanged and hence no effect of the cash from operations, ignoring taxes.

48. The following information for the current year is available for a company that prepares its financial statements in accordance with U.S. GAAP.

	in \$’000s
Revenue	7,000
Cost of goods sold	4,200
Other operating expenses	500
Restructuring costs	250
Interest expense	200

The company’s operating profit (in \$000s) is *closest* to:

- A. 1,850.
- B. 2,050.
- C. 2,300.

Answer = B

“Understanding Income Statements,” Elaine Henry, CFA, and Thomas R. Robinson, CFA  
 2013 Modular Level I, Vol.3, Reading 25, Section 4.2.3, Example 10, 5.3, 5.5  
 Study Session 8–25–f

Distinguish between the operating and non-operating components of the income statement.

B is correct.

	\$000s	
Revenue	7,000	
Less cost of goods sold	(4,200)	
Less other operating expenses	(500)	
Less restructuring expenses	(250)	Under U.S. GAAP restructuring charges are operating items
Operating profit	<b>\$2,050</b>	

49. Which of the following activities would an analyst *least likely* complete as part of the processing data phase of a financial analysis?

- A. Analyzing the prospects of the industry
- B. Preparing common-sized financial statement data
- C. Making adjustments for different accounting policies

Answer = A

“Financial Statement Analysis: An Introduction,” Elaine Henry, CFA, and Thomas R. Robinson, CFA

2013 Modular Level I, Vol. 3, Reading 22, Section 4.2, 4.3

Study Session 7–22–f

Describe the steps in the financial statement analysis framework.

A is correct. Analyzing the prospects of the industry would be done in the collect data phase of a financial analysis.

50. Which of the following reports is *least likely* to be filed with the SEC?

- A. Form 10-K
- B. Annual report
- C. Proxy statement

Answer = B

“Financial Reporting Standards,” Elaine Henry, CFA, Jan Hendrik van Greuning, CFA, and Thomas R. Robinson, CFA

2013 Modular Level I, Vol.3, Reading 24, Section 3.2.2

Study Session 7–24–b

Describe the roles and desirable attributes of financial reporting standard-setting bodies and regulatory authorities in establishing and enforcing reporting standards, and describe the role of the International Organization of Securities Commissions.

B is correct. The annual report is not a requirement of the SEC.

51. An analyst is forecasting gross profit of the three following companies. He uses the five-year average gross margins and forecasts sales using an internal model.

- Company 1’s products currently enjoy healthy margins because of its technological edge. New technologies typically replace old ones every two years in this industry.
- Company 2 has been offering the same products throughout the period, and the demand and cost structures for its products have not experienced any significant changes.
- Company 3 has recently restructured its product offerings focusing on high margin products only.

For which of the three companies will the forecast of gross profit be *most* reliable? Company:

- A. 1.
- B. 2.

C. 3.

Answer = B

“Financial Statement Analysis: Applications,” Thomas R. Robinson, CFA, Jan Hendrik van Greuning, CFA, Elaine Henry, CFA, and Michael A. Broihahn, CFA  
2013 Modular Level I, Vol. 3, Reading 35, Section 3.1 Example 3  
Study Session 10–35–b  
Prepare a basic projection of a company’s future net income and cash flow.

B is correct. Company 2 because it has been offering the same products and its demand and cost structures have been stable too. Therefore, the relationship between sales and gross profit (i.e., gross margin) should be stable and most reliable.

52. A company whose objective is to maximize income had spent \$1,000,000 for a machine with two significant components as indicated below. The machine is expected to have an overall useful life of 10 years and the company uses the straight line method of depreciation.

Component	Cost	Useful Life
A	\$500,000	10 years
B	\$500,000	5 years

The depreciation expense for the first year computed under IFRS compared with under U.S. GAAP will *most likely* be:

- A. the same.
- B. \$50,000 lower.
- C. \$50,000 higher.

Answer = C

“Long-Lived Assets” Elaine Henry, CFA and Elizabeth A Gordon  
2013 Modular Level I, Vol. 3, Reading 30, Section 3.1, Example 5  
Study Session 9–30–d  
Calculate depreciation expense.

C is correct.

<b>Under IFRS:</b> the company must use the component method of depreciation expense :	
$(500,000 \div 10) + (500,000 \div 5)$	= \$150,000 per year for the first five years.
<b>Under U.S. GAAP,</b> the company would not use component depreciation because it would prefer to minimize depreciation expense in order maximize income.	
$1,000,000 \div 10$	= \$100,000 per year.
Under IFRS, depreciation in first year is:	<b>\$50,000 higher</b>

53. Dividends received are *most likely* classified as which type of cash flow under both IFRS and U.S.GAAP?

- A. Investing
- B. Financing
- C. Operating

Answer = C

“Understanding Cash Flow Statements,” Elaine Henry, CFA, Thomas R. Robinson, CFA, Jan Hendrik van Greuning, CFA, and Michael A Broihahn, CFA  
2013 Modular Level I, Vol. 3, Section 2.2, Exhibit 1

Study Session: 8–27–c

Contrast cash flow statements prepared under International Financial Reporting Standards (IFRS) and U.S. generally accepted accounting principles (U.S. GAAP).

C is correct. Dividends received can be classified as either an operating or investing activity under IFRS, but can only be classified as an operating activity under U.S. GAAP.

54. The following selected data are available for a firm:

	<b>\$ millions</b>
Net income	90.0
Non-cash charges	15.2
Interest expense	28.0
Capital expenditures	34.3
Working capital expenditures	13.0

If the firm’s tax rate is 40%, the free cash flow to the firm (FCFF) is *closest* to:

- A. 57.9.
- B. 74.7.
- C. 87.7.

Answer = B

“Understanding Cash Flow Statements,” Elaine Henry, CFA, Thomas R. Robinson, CFA, Jan Hendrik van Greuning, CFA, and Michael A Broihahn, CFA  
2013 Modular Level I, Vol. 3, Section 4.3

Study Session: 8–27-i

Calculate and interpret free cash flow to the firm, free cash flow to equity, and performance and coverage cash flow ratios.

B is correct.

Calculate FCFF:

	<b>\$ millions</b>
Net income	90
+ Non-cash charges	15.2
+ Interest expense × (1-tax rate)	$28 \times (1-0.4) = 16.8$
- Capital expenditures	(34.3)
- Working capital expenditures	<u>(13)</u>

FCFF	<b>74.7</b>
------	-------------

55. The following financial data is available for a company:

Return on assets (ROA)	4.8%
Total asset turnover	1.92
Financial leverage	1.75
Dividend payout ratio	48.1%

The company's sustainable growth rate is *closest* to:

- A. 4.00%.
- B. 4.40%.
- C. 4.78%.

Answer = B

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

2013 Modular Level I, Vol. 3, Section 5.1.1, Exhibit 18

Study Session: 8-28-e

Calculate and interpret ratios used in equity analysis, credit analysis, and segment analysis.

B is correct.

Sustainable growth rate = retention ratio ( $b$ )  $\times$  ROE.

$b = 1 - \text{Dividend payout ratio}$	$1 - 0.481 = 0.519$
$\text{ROE} = \text{ROA} \times \text{Financial leverage}$	$.048 \times 1.75 = 0.084$
$\text{Sustainable growth rate} = b \times \text{ROE}$	$0.519 \times 0.084 = 0.044 = 4.40\%$

56. During a period of rising inventory costs, a company decides to change its inventory method from FIFO to the weighted average cost method. Which of the following financial ratios will *most likely* increase as a result of this change?

- A. Current
- B. Debt-to-equity
- C. Number of days in inventory

Answer = B

"Inventories," Michael A Broihahn, CFA

2013 Modular Level I, Vol. 3, Section 6, Example 5

Study Session: 9-29-h

Calculate and interpret ratios used to evaluate inventory management.

B is correct. All else held constant, in a period of rising costs the ending inventory would be lower under weighted average and cost of goods sold (CGS) will be higher (compared to FIFO) resulting in lower net income and retained earnings. There will be no impact on the debt level, current or long-term. Therefore the debt-to-equity ratio (Total debt ÷ Total shareholder's equity) will increase due to the decrease in retained earnings (and lower shareholders' equity).

57. Information about a company's planned capital expenditures is *most likely* found in the:

- A. proxy statement.
- B. notes to the financial statements.
- C. management discussion and analysis.

Answer = C

"Financial Statement Analysis: An Introduction," Elaine Henry, CFA and Thomas R. Robinson, CFA 2013 Modular Level 1, Vol.3, Reading 22, Section 3.1.6

Study Session: 7-22-e

Identify and explain information sources that analysts use in financial statement analysis besides annual financial statements and supplementary information.

C is correct. Forward-looking information such as those about planned capital expenditures is typically provided in the management discussion and analysis (MD&A).

58. The following information is available about a company:

Contributed capital, beginning of the year	\$ 50,000
Retained earnings, beginning of the year	225,000
Sales revenues earned during the year	450,000
Investment income earned during the year	5,000
Total expenses paid during the year	402,000
Dividends paid during the year	10,000
Total assets, end of the year	800,000

Total liabilities at the end of the year are *closest* to:

- A. \$472,000.
- B. \$482,000.
- C. \$487,000.

Answer = B

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

2013 Modular Level 1, Vol.3, Reading 23, Sections 3.2, 4.2

Study Session: 7-23-b, e

Explain the accounting equation in its basic and expanded forms.

Explain the relationships among the income statement, balance sheet, statement of cash flows, and statement of owners' equity.

B is correct.

Given Assets = Liabilities + Equity. First calculate ending equity (\$318,000, see calculation below)		
<b>\$800,000 = liabilities + \$318,000, Total liabilities = \$ 482,000</b>		
Contributed capital		\$ 50,000
Initial retained earnings		225,000
Sales revenues	450,000	
Investment income	5,000	
Total expenses	<u>(402,000)</u>	
Net income for the year	53,000	
Dividends paid	<u>(10,000)</u>	
Increase in retained earnings	43,000	<u>43,000</u>
Ending owners' equity		\$318,000

59. According to the International Accounting Standards Board's Conceptual Framework for Financial Reporting, the two fundamental qualitative characteristics that make financial information useful are *best* described as:

- A. timeliness and accrual accounting.
- B. understandability and verifiability.
- C. relevance and faithful representation.

Answer = C

"Financial Reporting Standards," Elaine Henry, CFA, Jan Hendrik van Greuning, CFA, and Thomas R. Robinson, CFA

2013 Modular Level I, Vol. 3, Reading 24, Section 5.2

Study Session 7-24-d

Describe the International Accounting Standards Board's conceptual framework, including the objective and qualitative characteristics of financial statements, required reporting elements, and constraints and assumptions in preparing financial statements.

C is correct. Relevance and faithful representation are the two fundamental qualitative characteristics that make financial information useful according to the IASB Conceptual Framework.

60. Which of the following statements about balance sheets is *most* accurate? Under:

- A. U.S. GAAP, intangibles must be valued at historical cost.
- B. IFRS, a commercial real estate company should use a liquidity based presentation.
- C. IFRS, a classified balance sheet must present current assets before non-current assets.

Answer = A

“Understanding Balance Sheets,” Elaine Henry, CFA and Thomas R. Robinson, CFA  
 2013 Modular Level 1, Vol.3, Reading 26, Section 2.2, 2.3, 4.3,  
 Study Session: 8-26- c, e

Describe alternative formats of balance sheet presentation.

Describe different types of assets and liabilities and the measurement bases of each.

A is correct. Under U.S. GAAP intangibles must be valued at historical cost, whereas under IFRS they can be valued at cost or revaluation.

61. A company recorded the following events in 2012:

	\$'000s
Purchase of securities for trading purposes	240
Proceeds from the sale of trading securities	300
Proceeds from issuance of bonds	500
Purchase of 30% of the shares of an affiliated company	275

On the 2012 statement of cash flows, the company’s net cash flow from investing activities (in \$'000s) is *closest* to:

- A. -275.
- B. -215.
- C. 285.

A is correct.

“Understanding Cash Flow Statements,” Elaine Henry, CFA, Thomas R. Robinson, CFA, Jan Hendrik van Greuning, CFA, and Michael A. Broihahn, CFA  
 2013 Modular Level I, Vol. 3, Reading 27, Section 2.1  
 Study Session 8-27-a

Compare cash flows from operating, investing, and financing activities and classify cash flow items as relating to one of those three categories given a description of the items.

A is correct. Only the cash flows for the purchase of the shares in an affiliated company are cash from investing activities, therefore the net amount is -\$275,000. Cash flows from trading securities are operating activities.

62. Selected information for a company is provided below.

	\$ millions
Sales	4,800
Cost of goods sold	2,880

Purchases	2,940
Average receivables	625
Average inventory	710
Average payables	145

The company's cash conversion cycle (in days) is *closest* to:

- A. 84.
- B. 120.
- C. 138.

Answer = B

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

2013 Modular Level I, Vol. 3, Reading 28, Section 4.2.2

"Working Capital Management," Edgar A. Norton, Jr., CFA, Kenneth L. Parkinson, and Pamela Peterson Drake, CFA

2013 Modular Level I, Vol. 4, Reading 40, Section 2.2

Study Session 8-28-b, 11-40-c

Classify, calculate and interpret activity, liquidity, solvency, profitability, and valuation ratios. Evaluate working capital effectiveness of a company based on its operating and cash conversion cycles, and compare the company's effectiveness with that of peer companies.

B is correct.

Cash conversion cycle = Days sales outstanding + Days of inventory on hand – Days of payables

	<b>Accounts receivable</b>	<b>Inventory</b>	<b>Accounts payables</b>
	<b>Days in Sales (DSO)</b>	<b>Days on hand (DOH)</b>	<b>Days in payables</b>
	<u>Sales</u>	<u>Cost of Goods Sold</u>	<u>Purchases</u>
<b>Turnover</b>	A/R	Inventory	Payables
	$4,800 \div 625$	$2,880 \div 710$	$2,940 \div 145$
	= 7.68 times	= 4.06 times	= 20.3 times
<b>In days</b>	$365 \div 7.68$	$365 \div 4.06$	$365 \div 20.3$
	= 48 days	= 90 days	= 18 days

**Cash conversion cycle = DSO + DOH – Days in Payables = 48 + 90 – 18 = 120 days**

63. Select information from a company that uses the FIFO inventory method is provided below.

Event	Units	\$/Unit	Total (\$)
Opening inventory	1,000	7.50	7,500
Purchase	250	7.60	1,900
Sales	550	12.00	6,600

Purchase	300	7.70	2,310
Sales	<u>600</u>	12.00	7,200
Ending inventory	400		

If the company used a perpetual system versus a periodic inventory system, the gross margin would *most likely* be:

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

Answer = C

"Inventories," Michael A. Broihahn, CFA  
 2013 Modular Level 1, Vol.3, Reading 29, Section 3.6  
 Study Session: 9-29-d, e

Calculate and compare cost of sales, gross profit, and ending inventory using perpetual and periodic inventory systems.

Compare and contrast cost of sales, ending inventory and gross profit using different inventory valuation methods.

C is correct. When using the FIFO inventory method the ending inventory, the cost of goods sold and the gross margin, are the same under either the perpetual or periodic methods. The use of a perpetual or periodic system makes a difference under weighted average, and LIFO.

64. A company, which prepares its financial statements according to IFRS, owns several investment properties on which it earns rental income. It values the properties using the fair value model based on prevailing rental markets. After two years of increases the market softened in 2012 and values decreased. A summary of the properties' valuations is as follows:

- Original cost (acquired in 2010) €50.0 million
- Fair value valuation as at December 31, 2010 €50.5 million
- Fair value valuation as at December 31, 2011 €54.5 million
- Fair value valuation as at December 31, 2012 €48.0 million

Which of the following *best* describes the impact of the revaluation on the 2012 financial statements?

- A. €6.5 million charge to net income
- B. €6.5 million charge to revaluation surplus
- C. €4.5 million charge to revaluation surplus and €2.0 million charge to net income

Answer = A

"Long-Lived Assets," Elaine Henry, CFA and Elizabeth A. Gordon  
 2013 Modular Level 1, Vol.3, Reading 30, Section 8  
 Study Session: 9-30-g, k

Describe the revaluation model.

Compare the financial reporting of investment property with that of property, plant, and equipment.

A is correct. For investment properties, when using the fair value model of revaluing assets, all increases and decreases affect net income.

65. Which of the following statements *most* accurately describes a valuation allowance for deferred taxes? A valuation allowance is required under:

- A. IFRS on revaluation of capital assets.
- B. U.S. GAAP if there is doubt about recovering a deferred tax asset.
- C. both IFRS and U.S. GAAP on tax differences arising from the translation of foreign operations.

Answer = B

“Income Taxes,” Elbie Antonites, CFA and Michael A. Broihahn, CFA  
2013 Modular Level 1, Vol. 3, Reading 31, Section 6.1  
Study Session, 9-31-g

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

B is correct. A valuation allowance is required under U.S. GAAP if there is doubt about whether a deferred tax asset will be recovered. Under IFRS the deferred tax asset is written down directly.

66. An analyst can *most* accurately identify a LIFO liquidation by observing a(n):

- A. increase in gross margin.
- B. decrease in the LIFO reserve.
- C. change in inventory out of line with change in sales.

Answer = B

“Financial Reporting Quality: Red Flags and Accounting Warning Signs,” Thomas R. Robinson, CFA and Paul Munter  
2013 Modular Level 1, Vol. 3, Reading 33, Section 3  
Study Session: 10-33-d

Describe common accounting warning signs and methods for detecting each.

B is correct. The most appropriate way to identify a LIFO liquidation is by reviewing the inventory footnotes for a decrease in the LIFO reserve. Although a LIFO liquidation may result in an increase in gross margin or changes in inventory out of line with changes in sales there are other factors that could explain those changes.

67. Selected information about a company is as follows:

(\$ '000)	2011 December 31	2012 projection
Sales	2,200	2,500
Variable operating costs (% of sales)	28%	30%
Fixed operating costs	1,400	1,400
Tax rate	25%	25%
Dividends paid	55	60
Interest bearing debt at 5%	500	500

The forecasted net income (in '000s) for 2012 is *closest* to:

- A. \$169.
- B. \$202.
- C. \$244.

Answer = C

“Financial Statement Analysis: Applications,” Thomas R. Robinson, CFA, Jan Hendrik van Greuning, CFA, Elaine Henry, CFA and Michael A. Broihahn, CFA  
2013 Modular Level 1, Vol. 3, Reading 35, Section 3.2, Example 5  
Study Session: 10-35-b

Prepare a basic projection of a company's future net income and cash flow.

C is correct. Forecasted net income is calculated as follows:

Sales	\$2,500	Given
Variable costs	(750)	30% of sales
Fixed costs	(1,400)	Given
Interest expense	(25)	0.05 x 500 average debt
Earnings before taxes	325	
Taxes	(81.25)	25% of EBT
Net income	\$243.75	Rounded to \$244

68. If a company chooses to capitalize an expenditure related to capital assets instead of expensing it, ignoring taxes, the company will *most likely* report:

- A. a lower cash flow per share in that period.
- B. a higher earnings per share in future periods.
- C. the same free cash flow to the firm in that period.

Answer = C

“Understanding Cash Flow Statements,” Elaine Henry, CFA, Thomas R. Robinson, CFA, Jan Hendrik van Greuning, CFA, and Michael A. Broihahn, CFA  
2013 Modular Level I, Vol. 3, Reading 27, Section 4.3

"Long-Lived Assets," Elaine Henry, CFA and Elizabeth A. Gordon  
2013 Modular Level 1, Vol.3, Reading 30, Section 2.1, Example 1,  
Study Session 8-27-i, 9-30-a,

Calculate and interpret free cash flow to the firm, free cash flow to equity, and performance and coverage cash flow ratios.

Distinguish between costs that are capitalised and costs that are expensed in the period in which they are incurred.

C is correct.

Example	Capitalizing delivery cost as opposed to expensing it	
	Ignoring taxes	
FCFF	CFO + interest $\times$ (1- t) – capital expenditures	
	capital expenditures	If capitalized, the amount capitalized increases capital expenditures and is recorded as a cash outflow from investing activities
	CFO	The CFO will be higher by amount capitalized, i.e., the amount not expensed
Since capital expenditures and CFO increase by the same amount, FCFF is unchanged		

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

69. Two mutually exclusive projects have the following cash flows (€) and internal rates of return (IRR):

Project	IRR	Year 0	Year 1	Year 2	Year 3	Year 4
A	27.97%	-2,450	345	849	635	3,645
B	28.37%	-2,450	345	849	1,051	3,175

Assuming a discount rate of 8% annually for both projects, the firm should *most likely* accept:

- A. both projects.
- B. Project A only.
- C. Project B only.

Answer = B

“Capital Budgeting,” John D. Stowe, CFA, and Jacques R. Gagne, CFA  
2013 Modular Level I, Vol.4, Reading 36, Sections 4.1, 4.2, 4.8.  
Study Session 11-36-c, d, e

Explain how the evaluation and selection of capital projects is affected by mutually exclusive projects, project sequencing, and capital rationing.

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).

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

The NPV of project A is €1,780.59

$$1,780.59 = -2,450 + \frac{345}{(1.08)^1} + \frac{849}{(1.08)^2} + \frac{635}{(1.08)^3} + \frac{3,645}{(1.08)^4}$$

The NPV of Project B is €1,765.36

$$1,765.36 = -2,450 + \frac{345}{(1.08)^1} + \frac{849}{(1.08)^2} + \frac{1,051}{(1.08)^3} + \frac{3,175}{(1.08)^4}$$

B is correct because Project A has a higher NPV and the projects are mutually exclusive, only Project A should be accepted.

70. A company's asset beta is 1.2 based on a debt-to-equity ratio of 50%. If the company's tax rate increases, the associated equity beta will *most likely*:

- A. increase.
- B. decrease.
- C. remain unchanged.

Answer = B

"Cost of Capital," Yves Courtois, CFA, Gene C. Lai, and Pamela Peterson Drake, CFA  
2013 Modular Level I, Vol.4, Reading 37, Section 4.1.

Study Session 11-37-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.

B is correct based on equation (10) with D/E referring to the debt-to-equity ratio:

$$\beta_{equity} = \beta_{asset} \times \left[ 1 + \left( (1 - tax\ rate) \times \frac{D}{E} \right) \right]$$

If the tax rate increases, then the bracketed term  $(1 - tax\ rate)$  decreases making the equity beta decrease because the asset beta is unchanged.

71. Which date in the chronology of a dividend payment is *most likely* determined by a Securities Exchange? The:

- A. declaration date.
- B. ex-dividend date.
- C. holder-of-record date.

Answer = B

“Dividends and Share Repurchases: Basics,” George H. Troughton, CFA and Gregory Noronha, CFA

2013 Modular Level I, Vol.4, Reading 39, Section 3.1, 3.2, 3.3.

Study Session 11-39-b

Describe dividend payment chronology, including the significance of declaration, holder-of-record, ex-dividend, and payment dates.

B is correct. The ex-dividend date is normally determined by the Securities Exchange on which the shares are listed. The corporation determines the holder-of-record date and declaration date.

72. A firm’s price-to-earnings ratio (P/E) is 12.5. The firm has decided to repurchase shares using external funds that have an after-tax cost of 9%. After the repurchase, the earnings per share (EPS) will *most likely*:

- A. increase.
- B. decrease.
- C. remain unchanged.

Answer = B

“Dividends and Share Repurchases: Basics,” George H. Troughton, CFA and Gregory Noronha, CFA

2013 Modular Level I, Vol.4, Reading 39, Section 4.2.1.

Study Session 11-39-d

Calculate and compare the effects of a share repurchase on earnings per share when 1) the repurchase is financed with the company’s excess cash and 2) the company uses funded debt to finance the repurchase.

B is correct. Convert the P/E to the earnings yield (E/P):  $1 \div 12.5 = 8\%$ . Because the after-tax cost of the external funds is higher than the earnings yield (i.e.,  $9\% > 8\%$ ), the EPS will decrease after the repurchase.

73. Which is *most likely* considered a “pull” on liquidity?

- A. Obsolete inventory
- B. Reduction in a line of credit
- C. Increased difficulty in collecting receivables

Answer = B

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

2013 Modular Level I, Vol.4, Reading 40, Section 2.1.3.

Study Session 11-40-a

Describe primary and secondary sources of liquidity and factors that influence a company’s liquidity position.

B is correct. A “pull” on liquidity occurs when disbursements are made too quickly (e.g. current liabilities are paid instead of being held or when credit availability is reduced or limited). A “drag” on liquidity occurs when receipts lag (i.e. non-cash current assets do not convert to cash quickly). Consequently, a reduction in a credit line is a “pull” on liquidity.

74. Based on best practices in corporate governance procedures, independent board members *most likely*:

- A. meet only in the presence of management.
- B. have a “lead” director when the board chair is not independent.
- C. hire independent consultants who are pre-approved by management.

Answer = B

“The Corporate Governance of Listed Companies: A Manual for Investors,” Kurt Schacht, CFA, James C. Allen, CFA, and Matthew Orsagh, CFA, CIPM

2013 Modular Level I, Vol.4, Reading 41, Section: Board Independence.

Study Session 11-41-c

Describe board independence and explain the importance of independent board members in corporate governance.

B is correct. Under best practices in corporate governance procedures, independent board members should have a “lead” director when the board chair is not independent.

75. The unit contribution margin for a product is \$12. Assuming fixed costs of \$12,000, interest costs of \$3,000, and a tax rate of 40%, the operating breakeven point (in units) is *closest to*:

- A. 750.
- B. 1,000.
- C. 1,250.

Answer = B

“Measures of Leverage,” Pamela Peterson Drake, CFA, Raj Aggarwal, CFA, Cynthia Harrington, CFA, and Adam Kobor, CFA

2013 Modular Level I, Vol.4, Reading 38, Section 3.6, Example 5

Study Session 11-38-e

Calculate and interpret the operating breakeven quantity of sales.

B is correct. The operating breakeven point is:

$$\frac{\text{fixed costs}}{\text{contribution margin}} = \frac{\$12,000}{\$12} = 1,000$$

76. The effective annualized cost (%) of a banker's acceptance that has an all-inclusive annual rate of 5.25% for a one-month loan of \$2,000,000 is *closest* to:

- A. 5.27.
- B. 5.38.
- C. 5.54.

Answer = A

"Working Capital Management," Edgar A. Norton, Jr., CFA, Kenneth L. Parkinson, and Pamela Peterson Drake, CFA

2013 Modular Level I, Vol. 4, Reading 40, Section 8.4., Example 7

Study Session 11-40-g

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

A is correct. Calculate the effective annualized cost:

$$\frac{\text{Interest}}{\text{Net proceeds}} \times 12 = \frac{2,000,000 \times 0.0525 \times 1/12}{2,000,000 \times (1 - 0.0525 \times 1/12)} \times 12 = 0.0527 = 5.27\%$$

77. Which of the following is *most* consistent with the best practices of corporate governance?

- A. All stakeholders should have the right to participate in the governance of the firm.
- B. All committees within the firm should benefit from the direct guidance of management.
- C. Appropriate controls and procedures exist that cover management's activities in running the daily operations of the firm.

Answer = C

"The Corporate Governance of Listed Companies: A Manual for Investors," Kurt Schacht, CFA, James C. Allen, CFA, and Matthew Orsagh, CFA, CIPM

2013 Modular Level I, Vol. 4, Reading 41, Section: Definitions: Corporate Governance.

Study Session 11-41-a, b

Define corporate governance.

Describe practices related to board and committee independence, experience, compensation, external consultants, and frequency of elections, and determine whether they are supportive of shareowner protection.

C is correct. Appropriate controls and procedures exist that cover management's activities in running the daily operations of the firm is consistent with the best practices of corporate governance.

78. Which of the following is the *least* appropriate method for an external analyst to estimate a company's target capital structure for determining WACC? Using the:

- A. averages of comparable companies' capital structure.
- B. company's current capital structure, at book value weights.
- C. statements made by the company's management regarding capital structure policy.

Answer = B

"Cost of Capital," Yves Courtois, CFA, Gene C. Lai, and Pamela Peterson Drake, CFA  
2013 Modular Level I, Vol. 4, Reading 37, Section 2.2  
Study Session 11-37-c

Explain alternative methods of calculating the weights used in the WACC, including the use of the company's target capital structure;

B is correct. An external analyst does not know a company's actual target capital structure. Consequently, the analyst should rely on market value (not book value) weights for the components of the company's current capital structure.

### Questions 79 through 90 relate to Equity Investments

79. Which of the following statements concerning regulatory bodies is *least* accurate? Regulatory bodies:

- A. act to level the playing field for market participants.
- B. help define minimum standards of practice for agents.
- C. require that regulated firms maintain optimum levels of capital.

Answer = C

"Market Organization and Structure," Larry Harris  
2013 Modular Level I, Vol. 5, Reading 46, Section 10  
Study Session 13-46-I

Describe the objectives of market regulation.

C is correct. Regulators impose minimum levels of capital that apply across the board to all regulated firms, not the optimum level which is firm specific.

80. A company has initiated the process of selling unproductive land representing 5% of its total assets and using the proceeds to buy back its common shares. Holding other factors constant, these actions by the company will *most likely* result in a:

- A. higher return on equity.
- B. higher operating margin.
- C. lower sustainable growth.

Answer = A

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

2013 Modular Level I, Vol. 3, Reading 28, Sections 4.5.2, 4.6.2.

“Introduction to Industry and Company Analysis,” Patrick W. Dorsey, CFA, Anthony M. Fiore, CFA and Ian Rossa O’Reilly, CFA

2013 Modular Level I, Vol. 5, Reading 50, Section 6.1

Study Session 8-28-c, d, e; 14-50-k

Describe the relationships among ratios and evaluate a company using ratio analysis.

Demonstrate the application of DuPont analysis of return on equity, and calculate and interpret the effects of changes in its components.

Calculate and interpret ratios used in equity analysis, credit analysis, and segment analysis.

Describe the elements that should be covered in a thorough company analysis.

A is correct. Selling unproductive land and using the proceeds from the sale to buy back shares reduces the total assets. Holding sales constant the decrease in assets would improve the asset turnover. Buying back shares increases the firm’s financial leverage. Both the increase in asset turnover and financial leverage will lead to a higher return on equity.

81. Which of the following is the *most* appropriate reason for using a free-cash-flow-to-equity (FCFE) model to value equity of a company?

- A. FCFE is a measure of the firm’s dividend paying capacity.
- B. FCFE models provide more accurate valuations than the dividend discount models.
- C. A firm’s borrowing activities could influence dividend decisions but they would not impact FCFE.

Answer = A

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

2013 Modular Level I, Vol. 5, Reading 51, Section 4

Study Session 14-51-c

Explain the rationale for using present-value of cash flow models to value equity and describe the dividend discount and free-cash-flow-to-equity models.

A is correct. FCFE is a measure of the firm’s dividend paying capacity.

82. The following information is available about a company:

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

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

- A. \$39.36.
- B. \$49.20.
- C. \$51.20.

Answer = A

"Introduction to Industry and Company Analysis," Patrick W. Dorsey, CFA, Anthony M. Fiore, CFA and Ian Rossa O'Reilly, CFA

2013 Modular Level I, Vol. 5, Reading 50, Section 6.1

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

2013 Modular Level I, Vol. 5, Reading 51, Section 4.3, Example 8

Study Session 14-50-k, 14-51-e

Describe the elements that should be covered in a thorough company analysis.

Calculate and interpret the intrinsic value of an equity security based on the Gordon (constant) growth dividend discount model or a two-stage dividend discount model, as appropriate.

A is correct.

Net profit margin = Net earnings ÷ Sales

Net earnings = Net profit margin × Sales;

Dividends per share ("D<sub>n</sub>") = (Net earnings × Payout ratio) ÷ # of outstanding shares;

Therefore, D<sub>1</sub> = (\$180 million × 0.15 × 0.60) ÷ 8 million = \$2.00

D<sub>2</sub> = \$2.00 × (1 + 0.25) = \$2.50

D<sub>3</sub> = \$2.00 × (1 + 0.25)<sup>2</sup> = \$3.13

D<sub>4</sub> = \$2.00 × (1 + 0.25)<sup>2</sup> × (1 + 0.05) = \$3.28

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

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

83. A trader buys 500 shares of a stock on margin at \$36 a share using an initial leverage ratio of 1.66. The maintenance margin requirement for the position is 30 percent. The stock price at which the margin call will occur is *closest* to:

- A. \$20.57.
- B. \$25.20.
- C. \$30.86.

Answer = A

“Market Organization and Structure,” Larry Harris  
2013 Modular Level I, Vol. 5, Reading 46, Section 5.2, Example 20  
Study Session 13-46-f

Calculate and interpret the leverage ratio, the rate of return on a margin transaction, and the security price at which the investor would receive a margin call.

A is correct.

Initial equity (%) in the margin transaction =  $1/\text{Leverage ratio} = 1/1.66 = 0.60$ ;

Initial equity per share at the time of purchase =  $\$36 \times 0.60 = \$21.60$ ;

Price at which margin call occurs:

Equity per share/Price per share = Maintenance margin %

$= (\$21.60 + P - \$36) \div P = 0.30$ ;

$0.7P = \$14.40$ ;

$P = \$20.57$ .

84. Which of the following financial intermediaries are *most likely* to provide liquidity service to their clients?

- A. Dealers
- B. Brokers
- C. Exchanges

A is correct.

“Market Organization and Structure,” Larry Harris  
2013 Modular Level I, Vol. 5, Reading 46, Sections 4.1, 4.2  
Study Session 13-46-d

Describe types of financial intermediaries and services they provide.

A is correct. The service that dealers provide is liquidity. Liquidity is the ability to buy or sell with low transaction costs when you want to trade. By allowing their clients to trade when they want to trade, dealers provide liquidity to them.

85. A trader places a limit order to buy shares at a price of \$49.94 with the stock trading at a market bid price of \$49.49 and the bid-ask spread of 0.7%. The order will *most likely* be filled at:

- A. \$49.49.
- B. \$49.84.
- C. \$49.94.

Answer = B

“Market Organization and Structure,” Larry Harris  
2013 Modular Level I, Vol. 5, Reading 46, Section 6.1, Exhibit 2  
Study Session 13-46-g, h  
Compare execution, validity, and clearing instructions.  
Compare market orders with limit orders.

B is correct. An order is filled at the best available price as long as this price is lower than the limit price. In this case, the best available price is the market ask price =  $\$49.49 \times (1 + 0.7\%) = \$49.84$ . Since this price is lower than the limit price of  $\$49.94$ , the order will be filled at this price

86. The financial systems that are operationally efficient are *most likely* characterized by:

- A. security prices that reflect fundamental values.
- B. the use of resources where they are most valuable.
- C. liquid markets with low commissions and order price impacts.

Answer = C

“Market Organization and Structure,” Larry Harris  
2013 Modular Level I, Vol. 5, Reading 46, Section 9  
Study Session 13-46-k  
Describe characteristics of a well-functioning financial system.

C is correct. Operationally efficient markets are liquid markets in which the costs of trading—commissions, bid–ask spreads, and order price impacts—are low.

87. An investor gathers the following information for an index:

Value of the index as of December 31, 2012	1,000
Interest income over the year 2012	23.50
Dividend income over the year 2012	21.50
Total return of the index over the year 2012	-4.50%

The value of the index as of January 1, 2012 is *closest* to:

- A. 1,047.
- B. 1,070.
- C. 1,094.

Answer = C

“Security Market Indices,” Paul D. Kaplan, CFA, and Dorothy C. Kelly, CFA.  
2013 Modular Level I, Vol. 5, Reading 47, Section 2  
Study Session 13-47-b  
Calculate and interpret the value, price return, and total return of an index.

C is correct. The total return of an index is the price appreciation, or change in the value of the price return index, plus income (dividends and/or interest) over the period, expressed as a percentage of the beginning value of the price return index.

$$TR_i = (V_{PRI1} - V_{PRIO} + Inc_i) \div V_{PRIO}$$

where

$TR_i$  = the total return of the index portfolio (as a decimal number)

$V_{PRI1}$  = the value of the price return index at the end of the period

$V_{PRIO}$  = the value of the price return index at the beginning of the period

$Inc_i$  = the total income (dividends and/or interest) from all securities in the index held over the period

$$-4.5\% = (1000 - V_{PRIO} + 23.5 + 21.5) \div V_{PRIO};$$

$$V_{PRIO} = 1000 + 23.5 + 21.5 \div (1 - 4.5\%) = 1,094.$$

88. After the public announcement of the merger of two firms an investor makes abnormal returns by going long on the target firm and short on the acquiring firm. This *most likely* violates which form of market efficiency?

- A. Semi-strong form only
- B. Weak and semi-strong forms
- C. Semi-strong and strong forms

Answer = B

“Market Efficiency,” W. Sean Cleary, CFA, Howard J. Atkinson, CFA, and Pamela Peterson Drake, CFA.

2013 Modular Level I, Vol. 5, Reading 48, Section 3.2

Study Session 13-48-d

Contrast weak-form, semi-strong-form, and strong-form market efficiency.

B is correct. In a semi-strong efficient market, prices adjust quickly and accurately to new information. In this case, prices would quickly adjust to the merger announcement and if the market is semi-strong efficient market, investors acting after the merger announcement would not be able to earn abnormal returns. Therefore, it is a violation of the semi-strong form of market efficiency. Note that the semi-strong form of market efficiency encompasses the weak form. Therefore, both weak and semi-strong forms of market efficiency are violated.

89. An analyst gathers the following information about two companies in the same industry:

	Company A	Company B
Book value per share	\$20	\$10
Market price per share	\$22	\$13
Return on equity	16%	13%
Retention ratio	40%	60%

What is the *most* appropriate conclusion regarding investors' expectations? Compared to Company B, Company A has:

- A. higher intrinsic value as reflected by its higher market price.

- B. higher sustainable growth as reflected by its higher return on equity.
- C. lower future investment opportunities due to its lower price-to-book ratio.

Answer = C

“Overview of Equity Securities” Ryan C. Fuhrmann, CFA, and Asjeet S. Lamba, CFA  
2013 Modular Level I, Vol. 5, Reading 49, Section 7.1

“Equity Valuation: Concepts and Basic Tools” John J. Nagorniak, CFA, and Stephen E. Wilcox, CFA  
2013 Modular Level I, Vol. 5, Reading 51, Section 4.2

Study Session 14-49-g, 14-51-e

Distinguish between the market value and book value of equity securities.

Calculate and interpret the intrinsic value of an equity security based on the Gordon (constant) growth dividend discount model or a two-stage dividend discount model, as appropriate.

C is correct. The price-to-book ratio, which is also referred to as the market-to-book ratio, provides an indication of investors’ expectations about a company’s future investment and cash flow-generating opportunities. The larger the price-to-book ratio (i.e., the greater the divergence between market value per share and book value per share), the more favorably investors will view the company’s future investment opportunities. In this case, as shown below, Company A has lower price-to-book ratio than Company B and therefore an expectation of lower future investment opportunities.

	<b>Company A</b>	<b>Company B</b>
Book value per share	\$20	\$10
Market price per share	\$22	\$13
Price-to-book ratio	$22/20 = 1.10$	$13/10 = 1.3$

90. An investor gathers the following data about a company:

Most recent year’s dividend per share	\$1.47
Next year’s estimate of earnings per share	\$4.00
Estimate of long-run return on equity (ROE)	15%
Estimate of long-run dividend payout ratio	40%
Investors’ required rate of return	12%

The company’s justified forward P/E is *closest* to:

- A. 10.0.
- B. 13.3.
- C. 20.0.

Answer = B

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

2013 Modular Level I, Vol. 5, Reading 51, Section 5.1, Example 11

Study Session 14-51-h

Calculate and interpret the following multiples: price to earnings, price to an estimate of operating cash flow, price to sales, and price to book value.

B is correct.

Justified forward P/E:  $P_0/E_1 = p / (r - g)$

$p$  = payout ratio = 40% (given);

$r$  = required rate of return = 12% (given)

$g = (1 - \text{Dividend payout ratio}) \times \text{ROE} = (1 - 0.40) \times 15 = 9\%$

$P_0/E_1 = p / (r - g) = 0.40 / (0.12 - 0.09) = 13.3x$

Alternatively:

Justified forward P/E:  $P_0/E_1 = (D_1 / E_1) / (r - g)$

$g = (1 - \text{Dividend payout ratio}) \times \text{ROE} = (1 - 0.40) \times 15 = 9\%$

$D_1 = \$1.47 \times 1.09 = 1.60$ ;  $E_1 = \$4.00$  (given);  $r$  = required rate of return = 12% (given)

$P_0/E_1 = (D_1 / E_1) / (r - g) = (1.60 / 4.00) / (0.12 - 0.09) = 13.3x$

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

91. A corporation issues 5-year fixed-rate bonds. Its treasurer expects interest rates to decline for all maturities for at least the next year. She enters into a 1-year agreement with a bank to receive quarterly fixed-rate payments and to make payments based on floating rates benchmarked on 3-month LIBOR. This agreement is *best* described as a:

- A. swap.
- B. futures contract.
- C. forward contract.

Answer = A

“Derivative Markets and Instruments,” Don M. Chance, CFA

2013 Modular Level I, Vol. 6, Reading 60, Section 2.1

Study Session 17-60-c

Define forward contracts, futures contracts, options (calls and puts), and swaps and compare their basic characteristics.

A is correct because a swap is a series of forward payments. Specifically, a swap is an agreement between two parties to exchange a series of future cash flows. The corporation receives fixed interest rate payments and makes variable interest rate payments. Given that the contract is for 1 year and the floating rate is based upon 3-month LIBOR, at least 4 payments will be made during the year.

92. A portfolio manager is required to sell 31,250 shares of XYZ Inc. in two months. She is concerned the price of XYZ shares will decline during the 2-month period, so she enters into a

deliverable equity forward contract to sell 31,250 shares of XYZ in two months for EUR 160 per share. When the contract expires, XYZ is trading at EUR 138 per share. The portfolio manager will *most likely*:

- A. pay EUR 687,500 to the dealer.
- B. receive EUR 4,312,500 from the dealer.
- C. receive EUR 5,000,000 from the dealer.

Answer = C

“Forward Markets and Contracts,” Don M. Chance, CFA  
2013 Modular Level I, Vol. 6, Reading 61, Section 3.1.1  
Study Session 17-61-d

Describe the characteristics of equity forward contracts and forward contracts on zero-coupon and coupon bonds.

C is correct because the portfolio manager entered into a contract to sell the stock to the dealer at \$160 per share in 2 months time.  $31,250 \text{ shares} \times \text{EUR } 160 = \text{EUR } 5,000,000$ .

93. A trader takes a long position in 40 futures contracts on Day 1. The futures have a daily price limit of \$5 and closes with a settlement price of \$106. On Day 2, the futures trade at \$111 and the bid and offer move to \$113 and \$115, respectively. The futures price remains at these price levels until the market closes. The marked-to-market amount the trader receives in his account at the end of Day 2 is *closest to*:

- A. \$200.
- B. \$280.
- C. \$320.

Answer = A

“Futures Markets and Contracts,” Don M. Chance, CFA  
2013 Modular Level I, Vol. 6, Reading 62, Section 3  
Study Session 17-62-d

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

A is correct. Because the future has a daily price limit of \$5, the highest possible settlement price on Day 2 is \$111. Therefore, the marked to market value would be  $(\$111 - \$106) \times 40 = \$200$ .

94. An investor is long an in-the-money American call option on a dividend paying stock. Would this option *most likely* ever be exercised early?

- A. No.
- B. Yes, if its time value is high enough.

C. Yes, if it pays a high enough dividend.

Answer = C

“Option Markets and Contracts,” Don M. Chance, CFA  
2013 Modular Level I, Vol. 6, Reading 63, Section 5.6  
Study Session 17-63-n

Explain how cash flows on the underlying asset affect put-call parity and the lower bounds on option prices.

C is correct because a cash flow such as a dividend payment is required for an early exercise. A dividend payment doesn't guarantee early exercise, as the dividend also needs to be large enough to justify the early exercise.

95. A European company issues a 5-year euro-denominated bond with a face value of EUR 50,000,000. The company then enters into a 5-year currency swap with a bank to convert the EUR exposure into USD exposure. The notional principals of the swap are EUR 50,000,000 and USD 70,000,000. The European company pays a fixed rate of 5% and the bank pays a fixed rate of 4.5%. Payments are made semiannually on a basis of 30 days per month and 360 days per year. What is the payment from the bank to the company at the end of year 4?

- A. USD 1,750,000.
- B. EUR 1,125,000.
- C. EUR 1,250,000.

Answer = B

“Swap Markets and Contracts,” Don M. Chance, CFA  
2013 Modular Level I, Vol. 6, Reading 64, Section 3.1  
Study Session 17-64-b

Describe, calculate, and interpret the payments of currency swaps, plain vanilla interest rate swaps, and equity swaps.

B is correct because the bank's payments are based upon a notional principal of EUR 50,000,000 and an interest rate of 4.5%. The payment is:  $\text{EUR } 50,000,000 \times (.045) \times (180/360) = \text{EUR } 1,125,000$ .

96. An investor with \$5000 to invest believes that the price of ABC Corp. stock will appreciate by \$7 to \$95 in two months. The two-month at-the-money put on one share of ABC stock costs \$1.76, while the two-month at-the-money call costs \$1.56. In order to profit from his view on ABC stock, he will *most likely*:

- A. sell calls on shares of ABC.
- B. sell puts on shares of ABC.
- C. buy calls on shares of ABC.

Answer = C

“Risk Management Applications of Option Strategies,” Don M. Chance, CFA  
2013 Modular Level I, Vol. 6, Reading 65, Section 2.1  
Study Session 17-65-a

Determine the value at expiration, profit, maximum profit, maximum loss, breakeven underlying price at expiration, and payoff graph of the strategies of buying and selling calls and puts, and determine the potential outcomes for investors using these strategies.

C is correct because buying a call gives the owner the right to buy the stock at the exercise price. The investor predicts that the stock will increase to \$95 at the end of two months. He will likely be able to sell his calls for at least \$7 and realize a profit.

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

97. If a bond’s issuer is required to retire a specified portion of the issue each year, the bond *most likely*:

- A. is callable.
- B. is a step-up note.
- C. has a sinking fund provision.

Answer = C

“Features of Debt Securities”, Frank J. Fabozzi, CFA  
2013 Modular Level I, Vol. 5, Reading 52, Section 6.3  
Study Session 15-52-d

Explain the provisions for redemption and retirement of bonds.

C is correct because a sinking fund provision requires retirement of a portion of the bond issue each year, rather than retirement of the entire issue at maturity.

98. One reason why the duration of a portfolio of bonds does not properly reflect that portfolio’s yield curve risk is the duration measure:

- A. assumes all yields change by the same amount.
- B. assumes all the bonds have the same discount rate.
- C. ignores differences in coupon rates across the bonds.

Answer = A

“Risks Associated with Investing in Bonds”, Frank J. Fabozzi, CFA  
2013 Modular Level I, Vol. 5, Reading 53, Section 3  
Study Session 15-53-g

Describe yield-curve risk and explain why duration does not account for yield-curve risk.

A is correct because duration assumes all interest rates across the yield curve change by the same amount and therefore each bond's yield changes by the same amount.

99. Investor A's marginal tax rate is 45%, while Investor B's is 30%. Both investors are considering two bonds for inclusion in a taxable portfolio. One bond is tax-exempt with a yield of 4.50%, while the other is taxable with a yield of 6.30%. Which bond will each investor *most likely* choose?

- A. Both investors will choose the taxable bond.
- B. Both investors will choose the tax-exempt bond.
- C. Investor A will choose the tax-exempt bond and Investor B will choose the taxable bond.

Answer = B

"Understanding Yield Spreads", Frank J. Fabozzi, CFA  
2013 Modular Level I, Vol. 5, Reading 55, Section 4.6.1  
Study Session 15-55-i

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

B is correct because the after-tax yield of the taxable security is lower than the yield on the tax-exempt security for both investors. After-tax yield = Pre-tax yield  $\times$  (1 - Marginal tax rate). For Investor A, the After-tax yield =  $6.30\% \times (1 - 0.45) = 3.47\%$ . For Investor B, the After-tax yield =  $6.30\% \times (1 - 0.30) = 4.41\%$ . Both are less than 4.50% and the investor will choose the investment with the highest after-tax yield.

100. The yield on a U.S. Treasury STRIPS security is also known as the Treasury:

- A. spot rate.
- B. yield spread.
- C. forward rate.

Answer = A

"Understanding Yield Spreads", Frank J. Fabozzi, CFA  
2013 Modular Level I, Vol. 5, Reading 55, Section 3.3  
Study Session 15-55-d  
Define a spot rate.

A is correct because a STRIPS security is a zero-coupon bond with no default risk and therefore represents the appropriate discount rate for a cash flow certain to be received at the maturity date for the STRIPS.

101. Consider a 5-year option-free bond that is priced at a discount to par value. Assuming the discount rate does not change, one year from now the value of the bond will *most likely*:

- A. increase.
- B. decrease.
- C. stay the same.

Answer = A

“Introduction to the Valuation of Debt Securities”, Frank J. Fabozzi, CFA  
 2013 Modular Level I, Vol. 5, Reading 56, Section 2.3.3  
 Study Session 16-56-d

Explain how the price of a bond changes if the discount rate changes and as the bond approaches its maturity date.

A is correct because the bond is priced below its par value but will be worth exactly par value at maturity. Over time, assuming a stable discount rate, the value of the bond must rise so that it is equal to par at maturity.

102. The market value of an 18-year zero-coupon bond with a maturity value of \$1,000 discounted at a 12% annual interest rate with semi-annual compounding is *closest to*:

- A. \$122.74.
- B. \$130.04.
- C. \$192.86.

Answer = A

“Introduction to the Valuation of Debt Securities”, Frank J. Fabozzi, CFA  
 2013 Modular Level I, Vol. 5, Reading 56, Section 2.6  
 Study Session 16-56-c

Calculate the value of a bond (coupon and zero-coupon).

A is correct because the value of a zero-coupon bond is  $= \frac{\text{Maturity value}}{(1 + i)^{\text{no.of years} \times 2}}$ , where  $i$  is the semi-

annual discount rate or  $\frac{\$1,000}{(1.06)^{18 \times 2}} = \$122.74$ .

103. All else equal, the difference between the nominal spread and the Z-spread for a non-Treasury security will *most likely* be larger when the:

- A. yield curve is flat.
- B. yield curve is steep.
- C. security has a bullet maturity rather than an amortizing structure.

Answer = B

“Yield Measures, Spot Rates, and Forward Rates”, Frank J. Fabozzi, CFA  
 2013 Modular Level I, Vol. 5, Reading 57, Section 4.2.1.1  
 Study Session 16-57-f

Explain nominal, zero-volatility spread, and option-adjusted spread, and the relations among these spreads and option cost.

B is correct because the main factor causing any difference between the nominal spread and the Z-spread is the shape of the Treasury spot rate curve. The steeper the spot rate curve, the greater the difference.

104. Assume the following six-month forward rates (presented on an annualized, bond-equivalent basis) were calculated from the yield curve.

Notation	Forward Rate
${}_1f_0$	0.50%
${}_1f_1$	0.70%
${}_1f_2$	1.00%
${}_1f_3$	1.50%
${}_1f_4$	2.20%
${}_1f_5$	3.00%
${}_1f_6$	4.00%

The 3-year spot rate is *closest to*:

- A. 0.74%.
- B. 1.48%.
- C. 2.06%.

Answer = B

“Yield Measures, Spot Rates, and Forward Rates”, Frank J. Fabozzi, CFA  
 2013 Modular Level I, Vol. 5, Reading 57, Section 5.2  
 Study Session 16-57-g

Explain a forward rate and calculate spot rates from forward rates, forward rates from spot rates, and the value of a bond using forward rates.

B is correct because  $z_6 = \left[ (1 + z_1) \times (1 + {}_1f_1) \times (1 + {}_1f_2) \times (1 + {}_1f_3) \times (1 + {}_1f_4) \times (1 + {}_1f_5) \right]^{1/6} - 1$ , which is then multiplied by two to convert to a bond-equivalent basis, where the forward rates are adjusted to a semi-annual basis and  $z_1 = {}_1f_0$ . Therefore,  $z_6 = [1.0025 \times 1.0035 \times 1.0050 \times 1.0075 \times 1.0110 \times 1.0150]^{1/6} - 1 = 0.0074 \times 2 = 1.48\%$ .

105. One advantage of the full valuation approach to measuring interest rate risk relative to the duration/convexity approach is that the full valuation approach:

- A. increases measurement accuracy.
- B. is easier to model than scenario analysis.
- C. requires the yield curve to change in a parallel fashion.

Answer = A

“Introduction to the Measurement of Interest Rate Risk”, Frank J. Fabozzi, CFA  
 2013 Modular Level I, Vol. 5, Reading 58, Section 2  
 Study Session 16-58-a

Distinguish between the full valuation approach (the scenario analysis approach) and the duration/convexity approach for measuring interest rate risk, and explain the advantage of using the full valuation approach.

A is correct because the full valuation approach allows modeling of the response to both parallel and non-parallel yield curve changes and will reflect cash flows that change when interest rates change, whereas the duration/convexity approach assumes parallel yield curve changes and fixed cash flows.

106. An analyst uses a valuation model to estimate the value of an option-free bond at 92.733 to yield 11%. If the value is 94.474 for a 60 basis point decrease in yield and 91.041 for a 60 basis point increase in yield, the effective duration of the bond is *closest* to:

- A. 1.85.
- B. 3.09.
- C. 6.17.

Answer = B

“Introduction to the Measurement of Interest Rate Risk,” Frank J. Fabozzi, CFA  
 2013 Modular Level I, Vol. 5, Reading 58, Section 4.1  
 Study Session 16-58-d

Calculate and interpret the effective duration of a bond, given information about how the bond’s price will increase and decrease for given changes in interest rates.

B is correct because the effective duration of a bond is  $D = \frac{V_- - V_+}{2 \times V_0 \times \Delta y}$ , where  $V_-$ ,  $V_0$ , and  $V_+$

are the values of the bond when the yield falls, under the current yield, and when the yield rises,

respectively, and  $\Delta y$  is size of the yield change. Therefore,  $D = \frac{94.474 - 91.041}{2 \times 92.733 \times 0.0060} = 3.09$ .

107. Which of the following is *least likely* to be a type of embedded option in a bond issue granted to bondholders? The right to:

- A. put the issue.
- B. call the issue.
- C. convert the issue.

Answer = B

“Features of Debt Securities,” Frank J. Fabozzi, CFA  
2013 Modular Level I, Vol. 5, Section 6.1, and Section 10.1  
Study Session 15-52-e

Identify common options embedded in a bond issue, explain the importance of embedded options, and identify whether an option benefits the issuer or the bondholder.

B is correct because this is a type of embedded option granted to issuers, not bondholders.

108. The bonds issued by ALS Corp. are currently priced at 108.00 and are option free. Based on a portfolio manager’s valuation model, a 10 basis points rise in interest rates will result in the bond price falling to 106.50 while a 10 basis points fall in interest rates will result in the bond price rising to 110.00. The market value of the portfolio manager’s holdings of ALS bonds is \$2 million. The expected change in the market value of this holding for a 100 basis point change in interest rates will be *closest* to:

- A. \$124,000.
- B. \$322,600.
- C. \$645,200.

Answer = B

“Risks Associated with Investing in Bonds,” Frank J. Fabozzi, CFA  
2013 Modular Level I, Vol. 5, Section 2.5  
Study Session 15-53-f

Calculate and interpret the duration and dollar duration of a bond.

B is correct because the bond’s duration is computed using:

$$\frac{\text{Price if yields decline} - \text{Price if yields rise}}{2 \times (\text{Initial price}) \times (\text{Change in yield in decimal})}$$

$$\frac{110.00 - 106.50}{2 \times 108.50 \times 0.0010} = 16.13.$$

The approximate percent change in the value of the holdings (the dollar duration) is:  
 $0.1613 \times 2,000,000 = \$322,600.$

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

109. An alternative investments fund that employs leverage and takes long and short positions in securities is *most likely* a:

- A. hedge fund.
- B. venture capital fund.
- C. leveraged buyout fund.

Answer = A

“Introduction to Alternative Investments,” Terri Duhon, George Spentzos, CFA, and Scott D. Stewart, CFA  
2013 Modular Level I, Vol. 6, Reading 66, Sections 2.1  
Study Session 18-66-b  
Describe categories of alternative investments.

A is correct. Hedge funds invest in securities and may take long and short positions. They may also employ leverage.

110. If an investor uses derivatives to make a long investment in commodities, the return earned on margin is *best* described as:

- A. price return.
- B. collateral yield.
- C. convenience yield.

Answer = B

“Investing in Commodities,” Ronald G. Layard-Liesching  
2013 Modular Level I, Vol. 6, Reading 67, Section 1  
Study Session 18-67-b  
Describe the sources of return and risk for a commodity investment and the effect on a portfolio of adding an allocation to commodities.

B is correct. Collateral yield is the return on cash used as margin on derivatives used to gain commodity exposure.

111. The *most likely* impact of adding commodities to a portfolio of equities and bonds is to:

- A. increase risk
- B. enhance return.
- C. reduce exposure to inflation.

Answer = C

“Investing in Commodities,” Ronald G. Layard-Liesching

2013 Modular Level I, Vol. 6, Reading 67, Section 3  
Study Session 18-67-b

Describe the sources of return and risk for a commodity investment and the effect on a portfolio of adding an allocation to commodities.

C is correct. Over the long term, commodity prices are closely related to inflation and, therefore, including commodities in a portfolio of equities and bonds will reduce its exposure to inflation.

112. The return on a commodity index is *likely* to be different from returns on the underlying commodities because:

- A. assets are not marked to market.
- B. data are subject to survivorship bias.
- C. indices are constructed using futures contracts.

Answer = C

“Introduction to Alternative Investments,” Terri Duhon, George Spentzos, CFA, and Scott D. Stewart, CFA

2013 Modular Level I, Vol. 6, Reading 66, Section 6.1

Study Session 18-66-e

Describe issues in valuing, and calculating returns on, hedge funds, private equity, real estate, and commodities.

C is correct. Since commodity indices are constructed using commodity futures and not the underlying commodities there can be differences between commodity index returns and the returns of the underlying commodities.

113. Which of the following investments *most likely* provides an investor with indirect, equity exposure to real estate?

- A. Real estate investment trusts.
- B. Real estate limited partnerships.
- C. Commercial mortgage backed securities.

Answer = A

“Introduction to Alternative Investments,” Terri Duhon, George Spentzos, CFA, and Scott D. Stewart, CFA

2013 Modular Level I, Vol. 6, Reading 66, Sections 5.1, 5.2

Study Session 18-66-d

Describe hedge funds, private equity, real estate, commodities, and other alternative investments, including, as applicable, strategies, sub-categories, potential benefits and risks, fee structures, and due diligence

A is correct. Real estate investment trusts (REITS) provide investors with indirect, equity real estate exposure. Real estate investment partnerships are a form of direct real estate equity investment. Commercial mortgage backed securities (CMBS) provides investors with indirect, debt investment opportunities in real estate.

114. High Plains Capital is a hedge fund with a portfolio valued at \$475,000,000 at the beginning of the year. One year later, the value of assets under management is \$541,500,000. The hedge fund charges a 1.5% management fee based on the end-of-year portfolio value, and a 10% incentive fee. If the incentive fee and management fee are calculated independently, the effective return for a hedge fund investor is *closest* to:

- A. 10.89%.
- B. 11.06%.
- C. 12.29%.

Answer = A

“Introduction to Alternative Investments,” Terri Duhon, George Spentzos, CFA, and Scott D. Stewart, CFA

2013 Modular Level I, Vol. 6, Reading 66, Section 3.3.1

Study Session 18-66-f

Describe, calculate, and interpret management and incentive fees and net-of-fees returns to hedge funds.

A is correct. The management fee =  $\$541,500,000 \times 0.015 = \$8,122,500$

The incentive fee =  $(\$541,500,000 - \$475,000,000) \times 0.10 = \$6,650,000$

Total fees = \$14,772,500

Return =  $(\$541,500,000 - \$475,000,000 - \$14,772,500) / \$475,000,000 = 0.1089$  or 10.89%.

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

115. Which of the following institutional investors are *most* likely to have a low tolerance for investment risk and relatively high liquidity needs?

- A. Insurance company
- B. Charitable foundation
- C. Defined benefit pension plan

Answer = A

“Portfolio Management: An Overview” by Robert M. Conroy, CFA and Alistair Byrne, CFA  
Modular Level I, Vol. 4, Reading 42, Section 3 (Exhibit 14)

Study Session 12-42-b

Describe types of investors and distinctive characteristics and needs of each.

A is correct because insurance companies need to be relatively conservative and liquid given the necessity of paying claims when due.

116. An asset management firm generated the following annual returns in their U.S. large cap equity portfolio:

Year	Net Return (%)
2008	-34.8
2009	32.2
2010	11.1
2011	-1.4

The 2012 return needed to achieve a trailing five year geometric mean annualized return of 5.0% when calculated at the end of 2012 is *closest* to:

- A. 17.9%.
- B. 27.6%.
- C. 35.2%.

Answer = C

"Portfolio Risk and Return: Part I" by Vijay Singal, CFA

Modular Level I, Vol. 4, Reading 43, Section 2.1.3

Study Session 12-43-a

Calculate and interpret major return measures and describe their appropriate uses.

C is correct.  $\bar{R}_G = 0.05 = \sqrt[5]{(1 - 0.348)(1 + 0.322)(1 + 0.111)(1 - 0.014)(1 + R_{2012})} - 1$

Holding period total return (cumulative) factor calculation through 2011:

$$(1 - 0.348) \times (1 + 0.322) \times (1 + 0.111) \times (1 - 0.014) = 0.652 \times 1.322 \times 1.111 \times 0.986 = 0.9442$$

Compound total return (cumulative) factor at 5% per year of five percent for five years:

$$1.05^5 = 1.2763$$

Return needed in 2012 to achieve a compound annualized return of 5%

$$1.2763 / 0.9442 = 1.3517 = 35.2 \text{ percent}$$

$$\text{Check: } 0.944 \times 1.352 = 1.276^{(1/5)} = 1.050 = 5 \text{ percent annualized}$$

117. Consider a portfolio with two assets. Asset A comprises 25% of the portfolio and has a standard deviation of 17.9%. Asset B comprises 75% of the portfolio and has a standard deviation of 6.2%. If the correlation of these two investments is 0.5, the portfolio standard deviation is *closest* to:

- A. 6.45%.
- B. 7.90%.
- C. 9.13%.

Answer = B

"Portfolio Risk and Return: Part I" by Vijay Singal, CFA

Modular Level I, Vol. 4, Reading 43, Section 2.3.3

Study Session 12-43-e, f

Calculate and interpret portfolio standard deviation

Describe the effect on a portfolio's risk of investing in assets that are less than perfectly correlated.

B is correct. The standard deviation of a two asset portfolio is given by the square root of the portfolio's variance:  $\sigma_p = \sqrt{(w_1^2\sigma_1^2 + w_2^2\sigma_2^2 + 2w_1w_2\rho_{1,2}\sigma_1\sigma_2)}$

Using the above formula, the existing standard deviation is calculated as follows:

$$\sqrt{(0.25^2 \times 0.179^2 + 0.75^2 \times 0.062^2 + 2 \times 0.25 \times 0.75 \times 0.5 \times 0.179 \times 0.062)} = 7.90\%$$

118. An asset has an annual return of 19.9%, standard deviation of returns of 18.5%, and correlation with the market of 0.9.

If the standard deviation of returns on the market is 15.9% and the risk-free rate is 1%, the beta of this asset is *closest* to:

A. 1.02.

B. 1.05.

C. 1.16

Answer = B

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

Modular Level I, Vol. 4, Reading 44, Section 3.2.4

Study Session 12-44-e

Calculate and interpret beta

B is correct.

$$\beta = (\rho_{i,m}\sigma_i) / \sigma_m$$

$$\beta = (0.90 \times 0.185) / 0.159$$

$$\beta = 1.047$$

119. Which of the following performance measures *most likely* relies on systematic risk as opposed to total risk when calculating risk-adjusted return?

A. M-squared

B. Sharpe ratio

C. Treynor ratio

Answer = C

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

Modular Level I, Vol. 4, Reading 44, Section 4.3.2

Study Session 12-44-h

Describe and demonstrate applications of the CAPM and the SML.

C is correct because the Treynor ratio measures the return premium of a portfolio versus the risk free asset relative to the portfolio's beta which is a measure of systematic risk.

120. A financial advisor gathers the following information about a new client:

- The client is a successful economics professor at a major university
- The client plans to work full time for seven years and then will work part time for 3 years before retiring
- The client owns two homes and does not have any outstanding debt
- The client has accumulated retirement savings of approximately \$ 2 million through their employer's retirement plan and will have anticipated retirement spending needs of \$60,000 per year
- The client reads numerous financial publications and follows markets closely
- While concerned about the current health of the global economy, the client maintains that he is a long-term investor

Based on the above information, which of the following *best* describes this client?

- A. low ability to take risk, but a high willingness to take risk
- B. high ability to take risk, but a low willingness to take risk
- C. high ability to take risk and a high willingness to take risk

Answer = C

"Basics of Portfolio Planning and Construction" by Alistair Byrne, CFA and Frank E. Smudde, CFA

Modular Level I, Vol. 4, Reading 45, Section 2.2.1

Study Session 12-45-d, e

Distinguish between the willingness and the ability (capacity) to take risk in analyzing an investor's financial risk tolerance.

Describe the investment constraints of liquidity, time horizon, tax concerns, legal and regulatory factors, and unique circumstances and their implications for the choice of portfolio assets.

C is correct. The client is in a strong financial situation (stable job, no debt), has a reasonably long time horizon before needing any liquidity (10 years), and reasonable retirement spending needs relative to total assets. These factors indicate a high ability to take risk. In addition, the client's knowledge of financial markets, experience, and focus on the long term also indicates a high willingness to take risk.