

# The Johns Hopkins Carey Business School

## Investment Analysis and Portfolio Management

Spring 2010

Instructor: Dr. Bahattin Buyuksahin

### Midterm Exam

ANSWER ALL OF THESE. Please show your work. Each question is equally weighted. Please bring a hard copy of your answers to the class. Do not submit your answers electronically.

**MIDTERM– DUE ON Monday March 1<sup>st</sup>, 2010**

Late submissions will not be graded.

Student: \_\_\_\_\_

1. You purchased JNJ stock at \$50 per share. The stock is currently selling at \$65. Your gains may be protected by placing a \_\_\_\_\_.

- A. stop-buy order
- B. limit-buy order
- C. market order
- D. limit-sell order
- E. none of the above.

2. In order for you to be indifferent between the after tax returns on a corporate bond paying 8.5% and a tax-exempt municipal bond paying 6.12%, what would your tax bracket need to be?

- A. 33%
- B. 28%
- C. 72%
- D. Cannot tell from the information given
- E. 15%

3. An investor purchases one municipal and one corporate bond that pay rates of return of 8% and 10%, respectively. If the investor is in the 20% marginal tax bracket, his or her after tax rates of return on the municipal and corporate bonds would be \_\_\_\_\_ and \_\_\_\_\_, respectively.

- A. 8% and 8%
- B. 6.4% and 8%
- C. 8% and 10%
- D. 6.4% and 10%
- E. 10% and 10%

4. In the event of the firm's bankruptcy

- A. the most shareholders can lose is their original investment in the firm's stock.
- B. common shareholders are the first in line to receive their claims on the firm's assets.
- C. bondholders have claim to what is left from the liquidation of the firm's assets after paying the shareholders.
- D. the claims of preferred shareholders are honored before those of the common shareholders.
- E. A and D.

5. Corporate shareholders are best protected from incompetent management decisions by

- A. the ability to call shareholder meetings.
- B. one-share/one-vote election rules.
- C. the ability to engage in proxy fights.
- D. management's control of pecuniary rewards.
- E. the threat of takeover by other firms.

6. Which of the following are mechanisms that have evolved to mitigate potential agency problems?

- I) compensation in the form of the firm's stock options
- II) hiring bickering family members as corporate spies
- III) underperforming management teams being forced out by boards of directors
- IV) security analysts monitoring the firm closely
- V) takeover threats

- A. I, III, IV, and V
- B. III, IV, and V
- C. I, III, and IV
- D. I, III, and V
- E. II and V

7. An ETF

- A. limits the diversification potential of investors who hold it.
- B. may be traded only in the primary market.
- C. tracks the performance of an index of share returns for a particular country or industry sector.
- D. is linked directly to the value of a composite index of futures contracts.
- E. must be earned as a performance bonus within a corporation rather than purchased.

8. Financial assets permit all of the following except \_\_\_\_\_.

- A. consumption timing
- B. allocation of risk
- C. separation of ownership and control
- D. elimination of risk
- E. all of the above

9. Asset allocation refers to \_\_\_\_\_.

- A. choosing which securities to hold based on their valuation
- B. investing only in "safe" securities
- C. the allocation of assets into broad asset classes
- D. bottom-up analysis
- E. all of the above

10. Which of the following is **not** a characteristic of a money market instrument?

- A. liquidity
- B. marketability
- C. long maturity
- D. liquidity premium
- E. C and D

11. Treasury Inflation-Protected Securities (TIPS)

- A. pay a fixed interest rate for life.
- B. pay a variable interest rate that is indexed to inflation.
- C. provide a constant stream of income in real (inflation-adjusted) dollars.
- D. have their principal adjusted in proportion to the Consumer Price Index.
- E. C and D

12. Which one of the following statements regarding orders is **false**?

- A. A market order is simply an order to buy or sell a stock immediately at the prevailing market price.
- B. A limit sell order is where investors specify prices at which they are willing to sell a security.
- C. If stock ABC is selling at \$50, a limit-buy order may instruct the broker to buy the stock if and when the share price falls below \$45.
- D. A day order expires at the close of the trading day.
- E. None of the above.

13. Assume you purchased 200 shares of GE common stock on margin at \$70 per share from your broker. If the initial margin is 55%, how much did you borrow from the broker?

- A. \$6,300
- B. \$7,700
- C. \$4,000
- D. \$7,000
- E. \$6,000

14. You purchased 100 shares of IBM common stock on margin at \$70 per share. Assume the initial margin is 50% and the maintenance margin is 30%. Below what stock price level would you get a margin call? Assume the stock pays no dividend; ignore interest on margin.

- A. \$21
- B. \$50
- C. \$49
- D. \$80
- E. none of the above

15. You purchased 100 shares of common stock on margin at \$45 per share. Assume the initial margin is 50% and the stock pays no dividend. What would the maintenance margin be if a margin call is made at a stock price of \$30? Ignore interest on margin.

- A. 0.33
- B. 0.23
- C. 0.25
- D. 0.55
- E. 0.43

16. Assume you sell short 100 shares of common stock at \$45 per share, with initial margin at 50%. What would be your rate of return if you repurchase the stock at \$40/share? The stock paid no dividends during the period, and you did not remove any money from the account before making the offsetting transaction.

- A. 20%
- B. 25%
- C. 22%
- D. 77%
- E. none of the above

17. Which of the following orders instructs the broker to sell at or below a specified price?

- A. Limit-buy order
- B. Stop-buy order
- C. Limit-sell order
- D. Stop-loss
- E. Market order

18. Block transactions are transactions for more than \_\_\_\_\_ shares and they account for about \_\_\_\_\_ percent of all trading on the NYSE.

- A. 100,000; 50
- B. 5,000; 23
- C. 1,000; 5
- D. 500; 10
- E. 10,000; 30

19. You want to purchase XON stock at \$60 from your broker using as little of your own money as possible. If initial margin is 50% and you have \$3000 to invest, how many shares can you buy?

- A. 100 shares
- B. 200 shares
- C. 500 shares
- D. 50 shares
- E. 25 shares

20. You sell short 100 shares of Loser Co. at a market price of \$45 per share. Your maximum possible loss is

- A. zero
- B. \$4500
- C. \$9000
- D. cannot tell from the information given
- E. unlimited

21. Which one of the following statements regarding open-end mutual funds is **false**?

- A. The funds redeem shares at net asset value.
- B. The funds offer investors professional management.
- C. The funds offer investors a guaranteed rate of return.
- D. B and C.
- E. A and B.

22. Which one of the following statements regarding closed-end mutual funds is **false**?

- A. The funds always trade at a discount from NAV.
- B. The funds redeem shares at their net asset value.
- C. The funds offer investors professional management.
- D. A and B.
- E. None of the above.

23. Multiple Mutual Funds had year-end assets of \$457,000,000 and liabilities of \$17,000,000. There were 24,300,000 shares in the fund at year-end. What was Multiple Mutual's Net Asset Value?

- A. \$7.00
- B. \$181.07
- C. \$18.11
- D. \$18.81
- E. \$69.96

24. Diversified Portfolios had year-end assets of \$279,000,000 and liabilities of \$43,000,000. If Diversified's NAV was \$42.13, how many shares must have been held in the fund?

- A. 43,000,000
- B. 6,488,372
- C. 5,601,709
- D. 1,182,203
- E. None of the above.

25. Which of the following statements about Real Estate Investment Trusts is **true**?

- A. REITs invest in real estate or loans secured by real estate.
- B. REITs raise capital by borrowing from banks and issuing mortgages.
- C. REITs are similar to open-end funds, with shares redeemable at NAV.
- D. All of the above are true.
- E. Both A and B are true.

26. The Profitability Fund had NAV per share of \$17.50 on January 1, 2007. On December 31 of the same year the fund's NAV was \$19.47. Income distributions were \$0.75 and the fund had capital gain distributions of \$1.00. Without considering taxes and transactions costs, what rate of return did an investor receive on the Profitability fund last year?

- A. 16.97%
- B. 15.54%
- C. 11.26%
- D. 21.26%
- E. 9.83%

27. Jargon Rapid Growth is a mutual fund that has traditionally accepted funds from new investors and issued new shares at net asset value. Jeremy Jargon manages the fund himself and has become concerned that its level of assets has become too high for his management abilities. He issues a statement that Jargon will no longer accept funds from new investors, but will continue to accept additional investments from current shareholders. Which of the following is true about Jargon Rapid Growth fund?

- A. Jargon is violating SEC policy by refusing to accept new investors.
- B. Jargon has always been a closed-end fund and will remain a closed-end fund.
- C. Jargon used to be an open-end fund but has now become a closed-end fund.
- D. Jargon is an open-end fund but would change to a closed-end fund if it wouldn't accept additional funds from current investors.
- E. Jargon has always been an open-end fund and will remain an open-end fund.

28. Commingled funds are

- A. closed-end funds that may be repurchased only once every two years at the discretion of mutual fund management.
- B. partnerships of investors that pool their funds, which are then managed for a fee.
- C. amounts invested in domestic and global equities.
- D. amounts invested in equity and fixed-income mutual funds.
- E. funds that may be purchased at intervals of 3, 6, or 12 month intervals at the discretion of management.

29. The fee that mutual funds use to help pay for advertising and promotional literature is called a

- A. back-end load fee.
- B. operating expense fee.
- C. front-end load fee.
- D. 12b-1 fee.
- E. structured fee.

30. A mutual fund had NAV per share of \$36.15 on January 1, 2007. On December 31 of the same year the fund's rate of return for the year was 14.0%. Income distributions were \$1.16 and the fund had capital gain distributions of \$2.12. Without considering taxes and transactions costs, what ending NAV would you calculate?
- A. \$47.25
  - B. \$44.69
  - C. \$37.93
  - D. \$36.28
  - E. \$34.52
31. Over the past year you earned a nominal rate of interest of 10 percent on your money. The inflation rate was 5 percent over the same period. The exact actual growth rate of your purchasing power was
- A. 10.0%.
  - B. 5.0%.
  - C. 15.5%.
  - D. 15.0%
  - E. 4.8%.
32. You purchased a share of stock for \$20. One year later you received \$1 as dividend and sold the share for \$29. What was your holding period return?
- A. 45%
  - B. 50%
  - C. 5%
  - D. 40%
  - E. none of the above
33. Which of the following statement(s) is (are) **true**?
- I) The real rate of interest is determined by the supply and demand for funds.
  - II) The real rate of interest is determined by the expected rate of inflation.
  - III) The real rate of interest can be affected by actions of the Fed.
  - IV) The real rate of interest is equal to the nominal interest rate plus the expected rate of inflation.
- A. III and IV only.
  - B. I and II only.
  - C. I, II, III, and IV only
  - D. II and III only.
  - E. I and III only.
34. Which of the following statements is **true**:
- A. Inflation has no effect on the nominal rate of interest.
  - B. The realized nominal rate of interest is always greater than the real rate of interest.
  - C. Certificates of deposit offer a guaranteed real rate of interest.
  - D. None of the above is true.
  - E. A, B and C

35. Ceteris paribus, a decrease in the demand for loanable funds
- A. drives the interest rate down.
  - B. drives the interest rate up.
  - C. might not have any effect on interest rate.
  - D. results from an increase in business prospects and a decrease in the level of savings.
  - E. none of the above.

36. The holding period return (HPR) on a share of stock is equal to
- A. the dividend yield, plus the risk premium.
  - B. the capital gain yield during the period, plus the inflation rate.
  - C. the change in stock price.
  - D. the capital gain yield during the period, plus the dividend yield.
  - E. the current yield, plus the dividend yield.

37. The risk premium for common stocks
- A. cannot be zero, for investors would be unwilling to invest in common stocks.
  - B. must always be positive, in theory.
  - C. is negative, as common stocks are risky.
  - D. A and B.
  - E. A and C.

38. You purchase a share of Boeing stock for \$90. One year later, after receiving a dividend of \$3, you sell the stock for \$92. What was your holding period return?
- A. 4.44%
  - B. 2.22%
  - C. 3.33%
  - D. 5.56%
  - E. none of the above

39. Toyota stock has the following probability distribution of expected prices one year from now:

State	Probability	Price
1	25%	\$50
2	40%	\$60
3	35%	\$70

If you buy Toyota today for \$55 and it will pay a dividend during the year of \$4 per share, what is your expected holding period return on Toyota?

- A. 17.72%
- B. 18.89%
- C. 17.91%
- D. 18.18%
- E. None of the above

40. Your Certificate of Deposit will mature in one week and you are considering how to invest the proceeds. If you invest in a 30-day CD the bank will pay you 4%. If you invest in a 2-year CD the bank will pay you 6% interest. Which option would you choose?
- A. the 30-day CD if you expect that interest rates will fall in the future
  - B. the 2-year CD if you expect that interest rates will fall in the future
  - C. the 30-day CD, no matter what you expect interest rates to do in the future
  - D. You would be indifferent between the 30-day and the 2-year CDs.
  - E. the 2-year CD, no matter what you expect interest rates to do in the future

41. "Bracket Creep" happens when

- A. tax liabilities are based on real income and there is a positive inflation rate.
- B. too many peculiar people make their way into the highest tax bracket.
- C. tax liabilities are based on nominal income and there is a positive inflation rate.
- D. tax liabilities are based on nominal income and there is a negative inflation rate.
- E. tax liabilities are based on real income and there is a negative inflation rate.

You have been given this probability distribution for the holding period return for a stock:

State of the Economy	Probability	HPR
Boom	.40	22%
Normal growth	.35	11%
Recession	.25	- 9%

42. What is the expected standard deviation for the stock?

- A. 2.07%
- B. 9.96%
- C. 7.04%
- D. 1.44%
- E. None of the above

43. Which of the following measures of risk best highlights the potential loss from extreme negative returns?

- A. Standard deviation
- B. Variance
- C. Upper partial standard deviation
- D. Value at Risk (VaR)
- E. None of the above

You have been given this probability distribution for the holding period return for GM stock:

State of the Economy	Probability	HPR
Boom	.40	30%
Normal growth	.40	11%
Recession	.20	- 10%

44. What is the expected variance for GM stock?

- A. 221.04%
- B. 200.00%
- C. 14.87%
- D. 16.13%
- E. 246.37%

45. When comparing investments with different horizons the \_\_\_\_\_ provides the more accurate comparison.

- A. arithmetic average
- B. effective annual rate
- C. average annual return
- D. historical annual average
- E. none of the above

46. An investment provides a 1.25% return quarterly, its effective annual rate is

- A. 5.23%.
- B. 5.09%.
- C. 4.02%
- D. 4.04%
- E. none of the above

47. Skewness is a measure of \_\_\_\_\_.

- A. how fat the tails of a distribution are
- B. the downside risk of a distribution
- C. the normality of a distribution
- D. the dividend yield of the distribution
- E. None of the above

48. Kurtosis is a measure of \_\_\_\_\_.

- A. how fat the tails of a distribution are
- B. the downside risk of a distribution
- C. the normality of a distribution
- D. the dividend yield of the distribution
- E. A and C

49. When a distribution is negatively skewed, \_\_\_\_\_.

- A. standard deviation overestimates risk
- B. standard deviation correctly estimates risk
- C. standard deviation underestimates risk
- D. the tails are fatter than in a normal distribution
- E. none of the above

50. If a portfolio had a return of 15%, the risk free asset return was 3%, and the standard deviation of the portfolio's excess returns was 34%, the risk premium would be \_\_\_\_\_.

- A. 31%
- B. 29%
- C. 12%
- D. 18%
- E. 49%

51. Which of the following statements regarding risk-averse investors is **true**?

- A. They only care about the rate of return.
- B. They accept investments that are fair games.
- C. They only accept risky investments that offer risk premiums over the risk-free rate.
- D. They are willing to accept lower returns and high risk.
- E. A and B.

52. Which of the following statements is (are) **false**?

- I) Risk-averse investors reject investments that are fair games.
  - II) Risk-neutral investors judge risky investments only by the expected returns.
  - III) Risk-averse investors judge investments only by their riskiness.
  - IV) Risk-loving investors will not engage in fair games.
- A. II and III only
  - B. I only
  - C. III, and IV only
  - D. II only
  - E. I and II only

53. In the mean-standard deviation graph, which one of the following statements is **true** regarding the indifference curve of a risk-averse investor?

- A. It is the locus of portfolios that have the same expected rates of return and different standard deviations.
- B. It is the locus of portfolios that have the same standard deviations and different rates of return.
- C. It is the locus of portfolios that offer the same utility according to returns and standard deviations.
- D. It connects portfolios that offer increasing utilities according to returns and standard deviations.
- E. none of the above.

54. In a return-standard deviation space, which of the following statements is (are) **true** for risk-averse investors? (The vertical and horizontal lines are referred to as the expected return-axis and the standard deviation-axis, respectively.)

- I) An investor's own indifference curves might intersect.
  - II) Indifference curves have negative slopes.
  - III) In a set of indifference curves, the highest offers the greatest utility.
  - IV) Indifference curves of two investors might intersect.
- A. I and II only
  - B. II and III only
  - C. I and IV only
  - D. III and IV only
  - E. none of the above

55. When an investment advisor attempts to determine an investor's risk tolerance, which factor would they be **least** likely to assess?

- A. the investor's feeling about loss
- B. the investor's prior investing experience
- C. the level of return the investor prefers
- D. the investor's degree of financial security
- E. the investor's tendency to make risky or conservative choices

Assume an investor with the following utility function:  $U = E(r) - 3/2(\sigma^2)$ .

56. To maximize her expected utility, she would choose the asset with an expected rate of return of \_\_\_\_\_ and a standard deviation of \_\_\_\_\_, respectively.

- A. 12%; 20%
- B. 10%; 15%
- C. 10%; 10%
- D. 8%; 10%
- E. none of the above

57. To maximize her expected utility, which one of the following investment alternatives would she choose?

- A. A portfolio that pays 10 percent with a 60 percent probability or 5 percent with 40 percent probability.
- B. A portfolio that pays 10 percent with 40 percent probability or 5 percent with a 60 percent probability.
- C. A portfolio that pays 12 percent with 60 percent probability or 5 percent with 40 percent probability.
- D. A portfolio that pays 12 percent with 40 percent probability or 5 percent with 60 percent probability.
- E. none of the above.

58. A portfolio has an expected rate of return of 0.15 and a standard deviation of 0.15. The risk-free rate is 6 percent. An investor has the following utility function:  $U = E(r) - (A/2)s^2$ . Which value of A makes this investor indifferent between the risky portfolio and the risk-free asset?

- A. 5
- B. 6
- C. 7
- D. 8
- E. none of the above

59. According to the mean-variance criterion, which one of the following investments dominates all others?

- A.  $E(r) = 0.15$ ; Variance = 0.20
- B.  $E(r) = 0.10$ ; Variance = 0.20
- C.  $E(r) = 0.10$ ; Variance = 0.25
- D.  $E(r) = 0.15$ ; Variance = 0.25
- E. none of these is dominates the other alternatives.

60. Consider a risky portfolio, A, with an expected rate of return of 0.15 and a standard deviation of 0.15, that lies on a given indifference curve. Which one of the following portfolios might lie on the same indifference curve?

- A.  $E(r) = 0.10$ ; Standard deviation = 0.10
- B.  $E(r) = 0.15$ ; Standard deviation = 0.20
- C.  $E(r) = 0.15$ ; Standard deviation = 0.10
- D.  $E(r) = 0.10$ ; Standard deviation = 0.20
- E.  $E(r) = 0.20$ ; Standard deviation = 0.15

Investment	Expected Return $E(r)$	Standard Deviation
1	0.12	0.3
2	0.15	0.5
3	0.21	0.16
4	0.24	0.21

$U = E(r) - (A/2)\sigma^2$ , where  $A = 4.0$ .

61. Based on the utility function above, which investment would you select?

- A. 4
- B. 2
- C. 1
- D. cannot tell from the information given
- E. 3

62. The variable (A) in the utility function represents the:

- A. investor's return requirement.
- B. investor's aversion to risk.
- C. certainty-equivalent rate of the portfolio.
- D. minimum required utility of the portfolio.
- E. none of the above.

63. The riskiness of individual assets

- A. should be considered for the asset in isolation.
- B. should be considered in the context of the effect on overall portfolio volatility.
- C. combined with the riskiness of other individual assets (in the proportions these assets constitute of the entire portfolio) should be the relevant risk measure.
- D. B and C.
- E. none of the above.

64. A fair game

- A. will not be undertaken by a risk-averse investor.
- B. is a risky investment with a zero risk premium.
- C. is a riskless investment.
- D. Both A and B are true.
- E. Both A and C are true.

65. The presence of risk means that

- A. more than one outcome is possible.
- B. final wealth will be greater than initial wealth.
- C. the standard deviation of the payoff is larger than its expected value.
- D. terminal wealth will be less than initial wealth.
- E. investors will lose money.

66. The certainty equivalent rate of a portfolio is

- A. the rate that a risk-free investment would need to offer with certainty to be considered equally attractive as the risky portfolio.
- B. the minimum rate guaranteed by institutions such as banks.
- C. represented by the scaling factor  $-.005$  in the utility function.
- D. the rate that the investor must earn for certain to give up the use of his money.
- E. the rate that equates "A" in the utility function with the average risk aversion coefficient for all risk-averse investors.

67. According to the mean-variance criterion, which of the statements below is correct?

Investment	E(r)	Standard Deviation
A	10%	5%
B	21%	11%
C	18%	23%
D	24%	16%

- A. Investment B dominates Investment A.
- B. Investment C dominates investment A.
- C. Investment D dominates only Investment B.
- D. Investment B dominates Investment C.
- E. Investment D dominates all of the other investments.

68. Steve is more risk-averse than Edie. On a graph that shows Steve and Edie's indifference curves, which of the following is true? Assume that the graph shows expected return on the vertical axis and standard deviation on the horizontal axis.

- I) Steve and Edie's indifference curves might intersect.
  - II) Steve's indifference curves will have flatter slopes than Edie's.
  - III) Steve's indifference curves will have steeper slopes than Edie's.
  - IV) Steve and Edie's indifference curves will not intersect.
  - V) Steve's indifference curves will be downward sloping and Edie's will be upward sloping.
- A. I and V
  - B. II and IV
  - C. I and II
  - D. I and III
  - E. III and IV

69. The Capital Allocation Line can be described as the
- A. investment opportunity set formed with a risky asset and a risk-free asset.
  - B. investment opportunity set formed with two risky assets.
  - C. line on which lie all portfolios that offer the same utility to a particular investor.
  - D. line on which lie all portfolios with the same expected rate of return and different standard deviations.
  - E. none of the above.

70. Given the capital allocation line, an investor's optimal portfolio is the portfolio that
- A. maximizes her expected profit.
  - B. maximizes her risk.
  - C. minimizes both her risk and return.
  - D. maximizes her expected utility.
  - E. none of the above.

71. An investor invests 30 percent of his wealth in a risky asset with an expected rate of return of 0.15 and a variance of 0.04 and 70 percent in a T-bill that pays 6 percent. His portfolio's expected return and standard deviation are \_\_\_\_\_ and \_\_\_\_\_, respectively.

- A. 0.114; 0.12
- B. 0.087; 0.06
- C. 0.295; 0.12
- D. 0.087; 0.12
- E. none of the above

72. An investor invests 30 percent of his wealth in a risky asset with an expected rate of return of 0.13 and a variance of 0.03 and 70 percent in a T-bill that pays 6 percent. His portfolio's expected return and standard deviation are \_\_\_\_\_ and \_\_\_\_\_, respectively.

- A. 0.114; 0.128
- B. 0.087; 0.063
- C. 0.295; 0.125
- D. 0.081; 0.052
- E. none of the above

You invest \$100 in a risky asset with an expected rate of return of 0.12 and a standard deviation of 0.15 and a T-bill with a rate of return of 0.05.

73. What percentages of your money must be invested in the risky asset and the risk-free asset, respectively, to form a portfolio with an expected return of 0.09?

- A. 75% and 25%
- B. 57% and 43%
- C. cannot be determined
- D. 85% and 15%
- E. 67% and 33%

74. A portfolio that has an expected outcome of \$115 is formed by

- A. borrowing \$43 at the risk-free rate and investing the total amount (\$143) in the risky asset.
- B. investing \$100 in the risky asset.
- C. investing \$80 in the risky asset and \$20 in the risk-free asset.
- D. Such a portfolio cannot be formed.
- E. investing \$43 in the risky asset and \$57 in the riskless asset.

75. Consider a T-bill with a rate of return of 5 percent and the following risky securities:

Security A:  $E(r) = 0.15$ ; Variance = 0.04

Security B:  $E(r) = 0.10$ ; Variance = 0.0225

Security C:  $E(r) = 0.12$ ; Variance = 0.01

Security D:  $E(r) = 0.13$ ; Variance = 0.0625

From which set of portfolios, formed with the T-bill and any one of the 4 risky securities, would a risk-averse investor always choose his portfolio?

- A. The set of portfolios formed with the T-bill and security B.
- B. Cannot be determined.
- C. The set of portfolios formed with the T-bill and security D.
- D. The set of portfolios formed with the T-bill and security A.
- E. The set of portfolios formed with the T-bill and security C.

You are considering investing \$1,000 in a T-bill that pays 0.05 and a risky portfolio, P, constructed with 2 risky securities, X and Y. The weights of X and Y in P are 0.60 and 0.40, respectively. X has an expected rate of return of 0.14 and variance of 0.01, and Y has an expected rate of return of 0.10 and a variance of 0.0081.

76. If you want to form a portfolio with an expected rate of return of 0.10, what percentages of your money must you invest in the T-bill, X, and Y, respectively if you keep X and Y in the same proportions to each other as in portfolio P?

- A. 0.19; 0.49; 0.32
- B. cannot be determined
- C. 0.32; 0.41; 0.27
- D. 0.50; 0.30; 0.20
- E. 0.25; 0.45; 0.30

77. What would be the dollar value of your positions in X, Y, and the T-bills, respectively, if you decide to hold a portfolio that has an expected outcome of \$1,200?

- A. \$108; \$514; \$378
- B. \$378; \$54; \$568
- C. \$54; \$568; \$378
- D. \$568; \$54; \$378
- E. Cannot be determined

78. Treasury bills are commonly viewed as risk-free assets because

- A. their short-term nature makes their values insensitive to interest rate fluctuations.
- B. the inflation uncertainty over their time to maturity is negligible.
- C. their term to maturity is identical to most investors' desired holding periods.
- D. Both A and B are true.
- E. Both B and C are true.

Your client, Bo Regard, holds a complete portfolio that consists of a portfolio of risky assets (P) and T-Bills. The information below refers to these assets.

E( $R_p$ )	12.00%
Standard Deviation of P	7.20%
T-Bill rate	3.60%
Proportion of Complete Portfolio in P	80%
Proportion of Complete Portfolio in T-Bills	20%
<b>Composition of P:</b>	
Stock A	40.00%
Stock B	25.00%
Stock C	35.00%
Total	100.00%

79. What is the equation of Bo's Capital Allocation Line?

- A.  $E(r_C) = 3.6 + 1.167 * \text{Standard Deviation of C}$
- B.  $E(r_C) = 7.2 + 3.6 * \text{Standard Deviation of C}$
- C.  $E(r_C) = 3.6 + 0.857 * \text{Standard Deviation of C}$
- D.  $E(r_C) = 0.2 + 1.167 * \text{Standard Deviation of C}$
- E.  $E(r_C) = 3.6 + 12.0 * \text{Standard Deviation of C}$

80. What are the proportions of Stocks A, B, and C, respectively in Bo's complete portfolio?

- A. 20%, 12.5%, 17.5%
- B. 8%, 5%, 7%
- C. 16%, 10%, 14%
- D. 32%, 20%, 28%
- E. 40%, 25%, 35%

81. Market risk is also referred to as

- A. systematic risk, diversifiable risk.
- B. systematic risk, nondiversifiable risk.
- C. unique risk, nondiversifiable risk.
- D. unique risk, diversifiable risk.
- E. none of the above.

82. Diversifiable risk is also referred to as

- A. systematic risk, unique risk.
- B. systematic risk, market risk.
- C. unique risk, market risk.
- D. unique risk, firm-specific risk.
- E. none of the above.

83. Other things equal, diversification is most effective when

- A. securities' returns are uncorrelated.
- B. securities' returns are positively correlated.
- C. securities' returns are high.
- D. securities' returns are negatively correlated.
- E. B and C.

84. The efficient frontier of risky assets is

- A. the portion of the investment opportunity set that lies above the global minimum variance portfolio.
- B. the portion of the investment opportunity set that represents the highest standard deviations.
- C. the portion of the investment opportunity set which includes the portfolios with the lowest standard deviation.
- D. the set of portfolios that have zero standard deviation.
- E. both A and B are true.

85. The Capital Allocation Line provided by a risk-free security and N risky securities is
- A. the line that connects the risk-free rate and the global minimum-variance portfolio of the risky securities.
  - B. the line that connects the risk-free rate and the portfolio of the risky securities that has the highest expected return on the efficient frontier.
  - C. the line tangent to the efficient frontier of risky securities drawn from the risk-free rate.
  - D. the horizontal line drawn from the risk-free rate.
  - E. none of the above.
86. Consider an investment opportunity set formed with two securities that are perfectly negatively correlated. The global minimum variance portfolio has a standard deviation that is always
- A. greater than zero.
  - B. equal to zero.
  - C. equal to the sum of the securities' standard deviations.
  - D. equal to -1.
  - E. none of the above.
87. Which of the following statements is (are) **false** regarding the variance of a portfolio of two risky securities?
- A. The higher the coefficient of correlation between securities, the greater the reduction in the portfolio variance.
  - B. There is a linear relationship between the securities' coefficient of correlation and the portfolio variance.
  - C. The degree to which the portfolio variance is reduced depends on the degree of correlation between securities.
  - D. A and B.
  - E. A and C.
88. Efficient portfolios of N risky securities are portfolios that
- A. have the highest rates of return for a given level of risk.
  - B. have the lowest standard deviations and the lowest rates of return.
  - C. have the highest risk and rates of return and the highest standard deviations.
  - D. are selected from those securities with the lowest standard deviations regardless of their returns.
  - E. are formed with the securities that have the highest rates of return regardless of their standard deviations.
89. Which of the following statement(s) is (are) **true** regarding the selection of a portfolio from those that lie on the Capital Allocation Line?
- A. Less risk-averse investors will invest more in the risk-free security and less in the optimal risky portfolio than more risk-averse investors.
  - B. More risk-averse investors will invest less in the optimal risky portfolio and more in the risk-free security than less risk-averse investors.
  - C. Investors choose the portfolio that maximizes their expected utility.
  - D. A and C.
  - E. B and C.

Consider the following probability distribution for stocks A and B:

State	Probability	Return on Stock A	Return on Stock B
1	0.10	10%	8%
2	0.20	13%	7%
3	0.20	12%	6%
4	0.30	14%	9%
5	0.20	15%	8%

90. The expected rates of return of stocks A and B are \_\_\_\_\_ and \_\_\_\_\_, respectively.

- A. 13.2%; 9%
- B. 14%; 10%
- C. 13.2%; 7.7%
- D. 7.7%; 13.2%
- E. none of the above

91. The standard deviations of stocks A and B are \_\_\_\_\_ and \_\_\_\_\_, respectively.

- A. 1.5%; 1.9%
- B. 2.5%; 1.1%
- C. 3.2%; 2.0%
- D. 1.5%; 1.1%
- E. none of the above

92. The coefficient of correlation between A and B is

- A. 0.47.
- B. 0.60.
- C. 0.58
- D. 1.20.
- E. none of the above.

93. If you invest 40% of your money in A and 60% in B, what would be your portfolio's expected rate of return and standard deviation?

- A. 9.9%; 3%
- B. 9.9%; 1.1%
- C. 11%; 1.1%
- D. 11%; 3%
- E. none of the above

94. Let G be the global minimum variance portfolio. The weights of A and B in G are \_\_\_\_\_ and \_\_\_\_\_, respectively.

- A. 0.66; 0.34
- B. 0.76; 0.24
- C. 0.24; 0.76
- D. 0.40; 0.60
- E. 0.34; 0.66

95. Which one of the following portfolios **cannot lie** on the efficient frontier as described by Markowitz?

Portfolio	Expected Return	Standard Deviation
W	9%	21%
X	5%	7%
Y	15%	36%
Z	12%	15%

- A. Only portfolio Y cannot lie on the efficient frontier.
- B. Cannot tell from the information given.
- C. Only portfolio X cannot lie on the efficient frontier.
- D. Only portfolio W cannot lie on the efficient frontier.
- E. Only portfolio Z cannot lie on the efficient frontier.

96. Which statement about portfolio diversification is correct?

- A. Proper diversification can reduce or eliminate systematic risk.
- B. The risk-reducing benefits of diversification do not occur meaningfully until at least 50-60 individual securities have been purchased.
- C. Because diversification reduces a portfolio's total risk, it necessarily reduces the portfolio's expected return.
- D. Typically, as more securities are added to a portfolio, total risk would be expected to decrease at a decreasing rate.
- E. None of the above statements are correct.

97. The individual investor's optimal portfolio is designated by:

- A. The point of tangency with the indifference curve and the capital allocation line.
- B. The point of highest reward to variability ratio in the opportunity set.
- C. The point of tangency with the opportunity set and the capital allocation line.
- D. The point of the highest reward to variability ratio in the indifference curve.
- E. None of the above.

98. In a two-security minimum variance portfolio where the correlation between securities is greater than -1.0

- A. the return will be zero.
- B. the security with the higher standard deviation will be weighted more heavily.
- C. the risk will be zero.
- D. the two securities will be equally weighted.
- E. the security with the higher standard deviation will be weighted less heavily.

99. When two risky securities that are positively correlated but not perfectly correlated are held in a portfolio,
- A. the portfolio standard deviation will be greater than the weighted average of the individual security standard deviations.
  - B. the portfolio standard deviation will be less than the weighted average of the individual security standard deviations.
  - C. the portfolio standard deviation will be equal to the weighted average of the individual security standard deviations.
  - D. the portfolio standard deviation will always be equal to the securities' covariance.
  - E. none of the above are true.

100. As the number of securities in a portfolio is increased, what happens to the average portfolio standard deviation?

- A. It decreases at a decreasing rate.
- B. It increases at a decreasing rate.
- C. It decreases at an increasing rate.
- D. It first decreases, then starts to increase as more securities are added.
- E. It increases at an increasing rate.