

SAMPLE MIDTERM AND FINAL QUESTIONS

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For the Hasbrouck midterm, the questions noted “[Midterm]” are relevant. For the Hasbrouck final, the questions noted “[Final]” are relevant.

EASY QUESTIONS:

1. **[Midterm]** Assuming that the proceeds of each year are reinvested in the following years, calculate the average annual return from the following sequence of returns: YR 1 = +.20, YR 2 = -.15, YR 3 = +.10, YR 4 = +.06

(a) .1263 (b) .0525 (c) .0835 (d) .0443

2. According to modern portfolio theory, the idea that investors with different indifference curves will hold the same portfolio of risky securities is a result of:

- (a) diminishing marginal utility of income
- (b) covariance
- (c) the separation theorem
- (d) the normal distribution assumption

3. **[Midterm]** Within the framework of modern portfolio theory, if portfolios A and B have the same return but portfolio A has less risk, then:

- (a) portfolio B is inefficient
- (b) portfolio A is inefficient
- (c) portfolio B cannot exist
- (d) you must hold both A and B

4. The law of diminishing marginal utility of income implies:

- (a) securities returns are serially uncorrelated
- (b) people are risk averse
- (c) the law of large numbers
- (d) all of the above

5. **[Midterm]** In a portfolio where you own positive amounts of two risky assets, the standard deviation of the portfolio cannot be reduced below the standard deviation of the lower risk asset if the correlation of returns between the two assets is:

(a) 0 (b) 1.0 (c) -1.0 (d) none of the above

6. **[Midterm]** According to modern portfolio theory, a risk neutral investor will choose an optimal portfolio

- (a) to maximize risk
- (b) to maximize return
- (c) to minimize risk
- (d) any of the above

7. If interest rate parity holds, what is the one-year forward price of the British Pound, assuming that the current exchange rate is \$1.60/£, the British one-year interest rate is 7% (expressed as an Effective Annual Rate) and the U.S. one-year rate is 9% (also expressed as an Effective Annual Rate)?

- (a) £0.61
- (b) \$1.57
- (c) \$1.63
- (d) Not enough information has been provided.

8. **[Midterm]** The capital allocation line will be a straight line:

- (a) when investors can borrow and lend at the risk free rate
- (b) when investors are risk neutral

- (c) when securities have zero covariance
- (d) when the risk free asset has the highest return of any security
- (e) all of the above

9. Within the framework of the supply and demand for credit, government deficits lead to: a) An inward shift in the demand curve, and therefore increased interest rates. b) An inward shift in the demand curve, and therefore decreased interest rates. c) An outward shift in the demand curve, and therefore increased interest rates. d) An outward shift in the demand curve, and therefore decreased interest rates.

10. **[Midterm]** In a portfolio consisting of the risk free asset and/or a risky asset, what is the expected return if you borrow 25% of your net worth by selling short the risk free asset and invest the proceeds in the risky asset, given the following? $R_m = .15$ $R_f = .05$ $\sigma_m = .2$

- a. 0.2
- b. 0.1875
- c. 0.175
- d. 0.15
- e. 0.05

[If you borrow 25% of your NW, then $y=1.25$ and $(1-y)=-0.25$. The expected return is then $E_rC = 1.25(0.15) - 0.25(0.05) = 0.175$]

11. **[Midterm]** An NYSE specialist holds a call auction:
- a) whenever there are more buy orders than sell orders
 - b) at the opening of the market every day
 - c) whenever there are more limit orders than market orders
 - d) if the specialist has a short inventory position

12. **[Midterm]** According to the CAPM, the best capital allocation line:

- a) is tangent to the efficient frontier of risky securities
- b) has the highest reward to variability ratio (price of risk)
- c) is comprised of efficient portfolios
- d) all of the above

13. Suppose two portfolios have the same average return, the same standard deviation of return but portfolio A has a higher beta than portfolio B. According to the Sharpe ratio, portfolio A's performance is:

- a) better than B
- b) poorer than B
- c) the same as B
- d) not enough information is given

14. You are given the following Government bond yields: one year U.S. dollar denominated bonds are 5 percent and one year Swiss franc denominated bonds are 3 percent. If the current exchange rate is 1.65 Swiss francs per U.S. dollar, what is the exchange rate of francs per dollar in one year at which you will break even on the risky arbitrage of borrowing in Swiss francs at 3 percent today, lending in U.S. dollars at 5 percent today and reversing the transaction in one year.

- (a) 1.6820 (b) 1.6186 (c) 1.6500 (d) 1.5728

15. **[Midterm]** According to the mean-variance criterion (principle of dominance), which of the following investments dominates the others (μ = mean return, s = standard deviation of return):

- (a) $\mu = .15$, $s = .2$
- (b) $\mu = .10$, $s = .2$

- (c) $\mu = .10, s = .25$
(d) $\mu = .15, s = .25$

HARDER QUESTIONS:

16. Security A has higher equilibrium price volatility and higher volume of trading than security B. If everything else were the same, the equilibrium bid-ask spread of A must be:

- a. Greater than B
- b. Less than B
- c. Equal to B
- d. It is impossible to tell

17. **[Midterm]** If you can get a 7.75% return on money invested for 10 years from your local bank, would it be wise to invest in a 10 year, \$1000 par value zero coupon bond that costs \$ 475? (Assume both are equally risky.)

- a. Yes
- b. No
- c. Can't tell from information given

18. Which of the following lowers the equilibrium nominal interest rate (all else the same)?

- a. A decrease in expected inflation
- b. An increase in household saving
- c. An increase in government spending
- d. a and b

19. **[Midterm]** What is the expected return on a two asset portfolio, where you invest 150% of your net worth in A, with a mean return of 10%, and borrow 50% of your net worth by selling short B, which has a mean return of 6%

- a. 8%
- b. 18%
- c. 120%
- d. 12%
- e. None of the above

20. **[Midterm]** The standard deviation of a two-security portfolio will be less than a linear combination of the two component security standard deviations:

- a. As long as the correlation coefficient of returns is less than 1
- b. Only if the correlation coefficient of returns is equal to zero
- c. If the variance of the added security is lower than the other securities in the portfolio
- d. None of the above

21. **[Midterm]** According to the CAPM, a security has an equilibrium expected return less than that of the risk-free asset when:

- a. Its correlation coefficient with the market is less than 1
- b. When it has a beta of zero
- c. A security never has an equilibrium expected return less than the risk free asset
- d. None of the above

22. **[Midterm]** According to modern portfolio theory, which of the following is not true?

- a. All systematic risk can be diversified away
- b. All non-systematic risk can be diversified away
- c. Diversification lowers the potential risk of the portfolio

d. None of the above

23. Suppose you buy a ten year \$1000 face value zero coupon bond whose yield to maturity (annual compounding) is 7 percent. You sell the bond exactly two years later, when the yield to maturity is 10 percent. What is the price change per \$1000 bond?

(a) +\$73.67 (b) +\$31.84 (c) -\$41.84 (d) -\$73.67

24. **[Midterm]** Suppose you have a two asset portfolio with $s_1 = .05$ and $s_2 = .08$. Assume the correlation coefficient of returns on the two assets is -1.0 . Assuming you must hold positive amounts of both securities, what fraction of the portfolio should you hold in asset 2 to reduce the risk of the portfolio to zero.

(a) .62 (b) .5 (c) .42 (d) .38

[See the discussion of perfect negative correlation on p. 174 in BKM. When $\rho = -1$, the minimum variance portfolio weights are given by $w_1 = \sigma_2 / (\sigma_1 + \sigma_2)$ and $w_2 = 1 - w_1$. $\rightarrow w_1 = 8 / (5 + 8) \rightarrow w_2 = 0.38$]

25. **[Midterm]** If your objective is to reduce the standard deviation of returns on a portfolio by the greatest amount, you should add a security:

- a. that has a lower standard deviation of returns than other securities in the portfolio
- b. That has a beta less than one
- c. That has returns that are uncorrelated with the returns on all other securities in the portfolio
- d. That has returns that are positively correlated with the returns on other securities in the portfolio

26. **[Midterm]** Which of the following statements about a one-year short sale of U.S. one-year Government bonds is true:

- a. It is impossible to sell short U.S. Government bonds for more than six months
- b. Even combined with other securities, the short sale makes no sense unless you expect to buy back the Government bonds after the price declines
- c. This transaction is functionally equivalent to borrowing money for one year
- d. This transaction will be profitable only if yields fall in the future

27. **[Midterm]** If a Treasury bill pays 5%, which of the following would definitely not be chosen by a risk averse investor:

- a. An asset paying 10%, with probability .6 or 2% with probability .4
 - b. An asset paying 10% with probability .4 or 2% with probability .6
 - c. An asset paying 10% with probability .2 or 3.75% with probability .8
 - d. An asset paying 10% with probability .3 or 3.75% with probability .7
- [The expected returns on these assets are: $E_r a = 6.8\%$; $E_r b = 5.2\%$; $E_r c = 5\%$; $E_r d = 5.6\%$. c has the same return as r_f , but is risky.]

28. **[Midterm]** The equilibrium market price of risk

- a. Is higher when investors are more risk averse
- b. Is fixed by the risk-free rate
- c. Cannot be greater than one
- d. All of the above

29. **[Midterm]** Which of the following is true about a risk averse investor?

- a. They care only about risk
- b. They care only about returns
- c. They might hold a risky security even if its expected return is less than the risk-free rate
- d. They prefer a risk-free security to a risky security

30. If the (positive) yield to maturity on a zero coupon bond is constant from one year to the next, the price of the zero coupon bond over the next year will
- Increase
 - Decrease
 - Remain the same
 - You cannot tell

HARDEST QUESTIONS:

31. **[Midterm]** According to the CAPM, if a security's beta is negative its expected return must be
- The market rate of return
 - Zero
 - A negative rate of return
 - The risk free rate
 - None of the above

32. **[Midterm]** A portfolio consisting of positive amounts of two securities with positive standard deviations but with a correlation of returns equal to zero has a global minimum variance portfolio that has a standard deviation:
- Equal to a weighted average of the standard deviations of the two securities
 - Equal to -1
 - Equal to 0
 - Greater than 0

33. The law of one price implies
- Higher risk requires higher returns
 - All zero coupon bonds have the same yield
 - All risky securities have returns greater than the risk free rate
 - Two well-diversified portfolios with the same beta should have the same expected return

34. Assume that transactions costs are zero and there is no credit risk in any transaction. If the price of CATS is \$88 (per 100 face value) and the price of TIGRS is \$87.50 and borrowing (lending) either security costs (earns) \$1.00 per \$ 100 (and that fee is fixed through the maturity date of the security), identify how you would construct (if possible) a profitable and riskless transaction.

Check one entry in each line (all must be correct)

(a) (b) (c)

- TIGRS Buy__ Sell Short__ Do Nothing__
- TIGRS Lend__ Borrow__ Do Nothing__
- CATS Buy__ Sell Short__ Do Nothing__
- CATS Lend__ Borrow__ Do Nothing__

35. **[Midterm]** Under what circumstances will a portfolio allocation of 25% in asset 1 and 75% in asset 2 produce a standard deviation (SD) for the combined portfolio equal to 25%, assuming $SD(1) = 10\%$ and $SD(2) = 30\%$:

(a) $\rho = 0$ (b) $\rho = 1$ (c) $\rho = -1$ (d) None of the above

36. The primary risk involved in an "uncovered interest arbitrage" transaction is:

- The foreign currency will fluctuate
- The foreign interest rate will fluctuate
- The US interest rate will fluctuate
- All of the above

37. **[Midterm]** Which of the following is not possible when two securities are positively correlated:

- a. Asset A's mean return is negative while asset B's is positive
- b. Asset A's return is sometimes below its mean when asset B's is above its mean
- c. Asset A's mean return is negative while asset B's mean return is also negative
- d. All are possible

38. **[Midterm]** Suppose the return on stock ABC was 14%. If CAPM is correct and if $R_f=3\%$, $R_m=10\%$ and ABC's Beta=1.45, the stock was:

- a. Overpriced (too high)
- b. Underpriced (too low)
- c. Properly priced
- d. Not enough information to answer

39. **[Midterm]** According to CAPM, if the expected return on asset 1, $E(r_1)$, is greater than the expected return on asset 2, $E(r_2)$, then:

- a. r_1 must always be greater than r_2
- b. s_1 must be greater than s_2
- c. β_1 must be greater than β_2
- d. all of the above must be true

40. **[Midterm]** Assume the variance of IBM is .16 and the variance of Microsoft is .25. If the variance of an equally weighted portfolio of these stocks is .0525, then the covariance between these stock is:

- (a) .10 (b) .20 (c) .25 (d) -.10

41. **[Midterm]** The following price data is available for SQV stock

Date	12/31/93	6/30/94	12/31/94
SQV	75	95	90

At the end of 1993, using \$100,000 of your own money, you buy \$150,000 worth of SQV stock on margin at \$75 per share. The call money rate (which is the rate that your broker charges you on any borrowed funds) was 8% per annum Effective Annual Rate. SQV did not pay any dividends in 1994. Ignore commissions. What is the value of your net worth at the end of 1994 (i.e., on 12/31/94)?

- a. \$180,000
- b. \$176,000
- c. \$130,000
- d. \$126,000

42. **[Midterm]** John and Jim are both risk averse and only care about the mean and standard deviation of their portfolio's return. They agree on the opportunity set available. There are N risky assets and a riskless asset. According to the CAPM, which of the following statements is correct?

- a. John and Jim hold the same portfolio of all assets.
- b. John and Jim may hold completely different portfolios of risky assets.
- c. When choosing between 2 portfolios, John and Jim always prefer the one with the lowest standard deviation.
- d. John holds any two risky assets in the same ratio as Jim does in his portfolio.

43. Suppose that among the many stocks in the market there are two securities, A and B, with the following characteristics: A has $E_r = .08$ and $\sigma = .4$ and B has $E_r = .13$ and $\sigma = .6$. If the correlation between these two is $\rho = -1$ and if it is possible to borrow and lend at the risk-free rate, r_f , then the equilibrium risk-free rate must be:

- (a) 9% (b) 10% (c) 11% (d) any of the above

[We can find a portfolio that has zero risk. That portfolio has an expected return = 10%. If there was another risk-free return (e.g., a bank rate) with $r_f =$, say, 8%, we'd borrow all we could at 8%, and invest

it (in the portfolio) at 10%. If the bank rate were >10%, we'd short the portfolio and invest at the bank rate. (Any time you can borrow cheaply and invest at a higher rate, with no risk, that's an arbitrage.)

44. Which of the following best explains a decline in a dealer's inventory: a. bid price and offer price are too high b. bid price is too high and offer price is too low c. bid price is too low and offer price is too high d. bid price and offer price are too low

45. If "round trip" (buy plus sell) transactions costs (including the cost of borrowing securities) totaled \$1.00 per \$100 face value of a zero coupon bond, which of the following prices (per \$100 face value) for CATs (C) and TIGRS (T) would be impossible in equilibrium because of arbitrage (more than one may be correct):

a. C=92, T=97 b. C=95, T=90 c. C=96, T=95 d. C=89, T=88 e. none of the above

46. Circle the first two steps in a profitable arbitrage, given the following: Yield on U.K. government one-year note: 8% Yield on U.S. government one-year note: 5% Exchange rate (spot): 1.60 USD/Pound Exchange rate (one year forward): 1.70 USD/Pound

a. Sell short US securities b. Sell USD in spot foreign exchange market for pounds c. Sell short UK securities d. Sell pounds in spot foreign exchange market for USD e. There is no arbitrage

47. In Japan, interest rates occasionally fluctuate below zero. If interest rates stabilized for two-years at -1% per annum, how would a two-year zero's price change after one year?

a. Increase b. Decrease c. Stay same d. Cannot tell from information given

48. **[Midterm]** According to CAPM, an asset with a beta below one is riskier than the market portfolio when that risky security is held by itself.

a. True
b. False
c. Cannot tell

49. **[Midterm]** According to CAPM, risk-neutral investors are more likely to invest in:

a. The least risky portfolio on the efficient frontier of risky securities.
b. The riskiest portfolio on the efficient frontier of risky securities.
c. The market portfolio.
d. Only the risk-free asset
e. The market portfolio leveraged by the risk-free asset.

50. **[Midterm]** A portfolio of nondividend-paying stocks earned a geometric mean return of 6 percent per annum between January 1, 1997 and December 31, 2005. The portfolio earned an arithmetic mean return per annum of 7 percent over the same period. If the portfolio's value on January 1, 1997 was \$100,000, the value on December 31, 2005 must have been \$_____.

SAMPLE MID-TERM ANSWERS

1. D
2. C
3. A
4. B
5. B
6. B
7. C
8. A
9. C
10. C

11. B
12. D
13. C
14. B
15. A
16. D
17. B (7.73%)
18. D
19. D
20. A
21. D
22. A
23. C
24. D
25. C
26. C
27. C
28. A
29. C
30. A
31. E
32. D
33. D
34. 1a,2a,3b,4b
35. B
36. A
37. D
38. B
39. C
40. D
41. D
42. D
43. B
44. D
45. A and B
46. A and B
47. B
48. C
49. E
50. 168,947.90

SAMPLE FINAL QUESTIONS

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EASY QUESTIONS:

1. **[Midterm]** Assume next year's dividends are \$3.00 per share and they are expected to grow at 4 percent per year. If the risk adjusted discount rate is 7 percent, then the constant rate of growth model implies a stock price of:
(a) 80 (b) 90 (c) 100 (d) 110

2. Assuming the CAPM holds, the most appropriate discount rate to use in valuing a project to double the size of an all-equity firm's main factory is:

- (a) the risk free rate plus the company's beta times (RM-RF) .
- (b) the risk free rate plus the standard deviation of the project's returns
- (c) the internal rate of return on the project
- (d) the risk free rate plus the company's beta

3. **[Final]** A bond's duration is higher when

- (a) The coupon rate is higher
- (b) The coupon rate is lower
- (c) Yield to maturity is higher
- (d) None of the above

4. **[Final]** If the one year spot rate is 4% and the forward rates for years 2, 3, 4, 5 are 5%, 7%, 8%, and 6%, respectively, then today's interest rate on a five-year bond should be
a. 4% b. 5% c. 6% d. 7% e. 8%

5. **[Midterm]** The Dividend Discount Model (DDM)

- a. is a valuation model only for companies that have paid dividends
- b. is a dividend distribution model used by corporate managers for dividend decisions
- c. is a valuation model for new issues only
- d. accounts for risk by discounting with a risk adjusted discount rate
- e. a and d

6. **[Final]** The efficient market hypothesis says

- (a) No one can ever beat the market over a ten year period
- (b) Insider trading should be illegal
- (c) Everyone should hold the same portfolio
- (d) None of the above

7. **[Final]** According to the liquidity premium theory, an upward sloping yield implies

- (a) Short-term rates are expected to rise
- (b) Long-term rates are expected to rise
- (c) Short-term rates are definitely not expected to decline
- (d) You cannot tell

8. **[Final]** A coupon bond that pays interest of \$100 annually has a par value of \$1,000, matures in 5 years, and is selling today at a \$72 discount from par value. The yield to maturity on this bond is a) 6.00% b) 8.33% c) 10.39% d) 12.00% e) 60.00%

9. **[Final]** Comparing a long put position with a short call position reveals the following common element:

- (a) both positions have rights but no obligations
- (b) both positions benefit from an increase in interest rates
- (c) both positions will lose money if the price of the underlying remains unchanged
- (d) both positions are potential sellers of the underlying asset

10. **[Final]** If corporate insiders who buy stock in their companies earn the same risk adjusted return as other investors, then:

- (a) the market is not strong form efficient
- (b) the market is strong form efficient
- (c) they do not hold well diversified portfolios
- (d) then the beta of their portfolios must be one

11. **[Final]** To lend money starting at the beginning of next year for one year at a currently known rate you can:

- (a) sell short a two year security and buy a one year security
- (b) buy a two year security and sell short a one year security
- (c) buy a two year security
- (d) sell short a two-year security

12. **[Final]** One thousand dollars invested in a zero coupon bond with five years to maturity will produce the same amount of money after five years as \$1000 invested in a 10 percent coupon bond with five years to maturity:

- (a) if they are both priced to yield 10 percent to maturity
- (b) if the investor can and does reinvest the coupons at the yield to maturity
- (c) if (a) and (b) hold
- (d) under no circumstances

13. **[Final]** A one basis point decrease in yield on a bond with a duration of 10 years and a yield to maturity of 11 percent produces a change in the price of a \$100 face value bond from \$90.00 to:

- (a) 90.05 (b) 89.92 (c) 90.11 (d) 90.08

14. **[Final]** The duration of a 5 year zero coupon bond is lower when the interest rate is: (a) higher (b) lower (c) unchanged (d) none of the above

15. **[Final]** Suppose you buy an IBM straddle: a put with a strike of 60 and a call with a strike of 60, where each option has a premium of \$3. Your straddle is an appropriate strategy if you believe that at expiration:

- (a) IBM will be above 63
- (b) IBM will be below 57
- (c) IBM will be either above 63 or below 57
- (d) IBM will be either above 66 or below 54

HARDER QUESTIONS:

16. Which of the following five-year investments has the highest effective annual rate

- (a) An 8 percent coupon annual pay bond selling at 97
- (b) An 8 percent coupon semi-annual pay bond selling at par
- (c) A zero coupon bond with \$ 1 000 face value selling at \$665
- (d) They all have the same EAR

17. **[Final]** Suppose you buy a put option with a strike price of 100 for a premium of \$10. Your maximum profit per share is

- (a) \$10
- (b) \$100
- (c) \$90
- (d) \$110

18. **[Final]** If securities returns are serially correlated then:

- (a) the stock market is weak form efficient
- (b) the stock market is semi-strong form efficient
- (c) the stock market is strong form efficient
- (d) the stock market is weak form inefficient

19. **[Final]** According to the expectations theory, an upward sloping yield curve implies

- (a) Future short-term rates are expected to rise
- (b) Long-term rates will be higher next year
- (c) a and b
- (d) You cannot tell

20. **[Final]** Which of the following is consistent with a random walk?

- (a) Tomorrow's stock price level is independent of today's stock price level
- (b) Tomorrow's returns are independent of today's returns
- (c) News does not affect stock prices
- (d) All of the above

21. **[Final]** Being long a call and short a put with the same exercise price and expiration is like:

- a. Long stock
- b. Short stock
- c. Long stock on margin
- d. Long a straddle

22. **[Final]** If the implied volatility of a call is greater than what you think is the actual volatility, you should:

- a. Buy the call
- b. Write the call
- c. Buy the put
- d. Sell the stock

23. **[Final]** In a swap agreement, the fixed rate payer/floating rate receiver has a position similar to:

- a. Long the five-year, short the 6-month
- b. Short the five-year, short the 6-month
- c. Long the five-year, long the 6-month
- d. Short the five-year, long the 6-month

24. **[Final]** If the expected one-year rate beginning next year is less than the forward rate, what should you think about doing today if you are going to receive 1000 dollars in one year?

- a. Nothing
- b. Buy the one year zero, short the two year zero
- c. Buy the two year zero, short the one year zero
- d. Buy a futures contract on the 30-year bond and sell in two years

25. **[Final]** According to the Black Scholes model, if $N(d_1)$ and $N(d_2)$ for a particular call option are both $=0$, which of the following is most true

- a. The call is worthless

- b. The call will be exercised with certainty
- c. The call will not equal the minimum value
- d. The call will be less than the minimum value

26. **[Final]** Which of the following represents an arbitrage opportunity where you would do the following: buy the call, sell the put and sell the stock. $S=110, X=100, r=0, t=1$

- a. $P=2, C=12$
- b. $P=5, C=15$
- c. $P=12, C=23$
- d. $P=5, C=12$

By put-call parity, $S+P = B+C \rightarrow C-P-S = -B$. At $r=0$, a bond with a par value X should have market value X . So for an arbitrage we should have $C-P-S < -X$:

$$12-2-110 = -100x$$

$$15-5-110 = -100x$$

$$23-12-110 = -99$$

$$12-5-110 = -102 < -100 \text{ Yes!}$$

27. **[Final]** Assume you bought an 8% coupon bearing bond with 4 years to maturity at par and then sold it at a premium before maturity. If you were able to reinvest the coupons at the YTM, then:

- a. Return = YTM
- b. Return is less than YTM
- c. Return is greater than YTM
- d. You cannot tell

28. **[Final]** The Liquidity Premium theory says (2 are right):

- a. The equilibrium 2 year rate = forward rate
- b. The equilibrium 2 year rate is greater than the average of the current and expected future short term rates
- c. The expected future short term rate = the forward rate
- d. The expected future short-term rate is less than the forward rate

29. **[Final]** The Liquidity Premium theory holds because investors are risk averse and because there are:

- a. More 2 year investors than one year investors
- b. More 2 year securities than "two-year" investors
- c. More one year securities than one year investors
- d. All of the above

30. **[Final]** Assume a zero coupon bond has duration = 10 years and a 30 year bond has an 18% coupon and a duration = 10 years. Assume further that the yields on both bonds are the same and then change by the identical infinitesimally small amount. Then, the price volatility of the 30 year will be:

- a. Equal to the price volatility of the zero
- b. Less than the price volatility of the zero
- c. Greater than the price volatility of the zero
- d. Can't tell

31. **[Final]** The ability to replicate an option with a position in the underlying stock depends crucially on:

- (a) dynamically adjusting the hedge ratio on a continuous basis
- (b) correctly predicting tomorrow's stock price
- (c) properly estimating the stock's β
- (d) all of the above

32. **[Final]** Bonds with call provisions are
a. more desirable than noncallable and generally higher priced
b. less desirable than non callable and generally lower priced
c. more desirable than non callable and generally higher priced
d. are not worth buying

33. **[Final]** A party will enter a Swap agreement to: a) Reduce risk exposure on its balance sheet b) Speculate c) Immunization against interest rate changes d) Not enough information given to determine

34. **[Final]** An upcoming event suggests that there will be significant movement in the share price, but you're not sure in which direction. Which position would you choose?
a) Long a call
b) Short a call
c) Long a straddle
d) Long a protective put

HARDEST QUESTIONS:

35. For a Treasury Bill, the BYE $[(F-P)/P]/t$ where $t = x/365$
a) assumes compounding within a year
b) assumes simple interest
c) takes the periodic rate and multiplies by the number of periods
d) b and c are true

36. Assuming you hold an annual pay coupon bearing bond to maturity, its annual return $r = (V_T/V_0)^{1/T} - 1$ is equal to:
a) the YTM if you can and do reinvest at a fixed rate
b) the EAR
c) the YTM if you can and do reinvest at the YTM
d) none of the above

37. **[Final]** In a downward sloping yield curve environment, a) the liquidity premium cannot exist b) according to the expectations approach, long-term rates are no longer an average of current and expected future rates c) expected future short term rates cannot be greater than the current short term rate d) a and b are correct

38. **[Final]** According to the Expectations Approach to the term structure a) the forward rate is not a good estimate of the expected future 1-year rate b) investors are risk averse c) when the term structure is in equilibrium, the forward rate is equal to the expected rate d) none of the above

39. **[Final]** According to the liquidity premium approach to the term structure a) The investors' subjective degree of risk aversion is embedded in the 2-year rate b) the equilibrium 2-year rate > an average of 1-year and expected future 1-year rate c) the forward rate > the expected rate due to a risk premium d) all of the above

40. **[Final]** The buyer of a put and seller of a call a) both are potential sellers of the underlying asset b) both have rights and not obligations c) both profit if the price of the underlying asset falls d) a and c are correct

41. **[Final]** A protective put a) combines a long put with long stock b) creates a long call c) profits when the underlying asset's stock price increases d) has downside protection e) all of the above

42. **[Final]** Long a straddle a) is a bet on volatility b) profits when nothing happens c) profits with wide swings in either direction of the price of the underlying asset d) is the same as a protective put e) a and c are correct

43. **[Final]** The price volatility of a bond during a year, in general, depends upon

- (a) the duration of the bond
- (b) the volatility of interest rates
- (c) the volatility of expected inflation
- (d) all of the above

44. **[Final]** Which of the following statements is false: a) When current yield is greater than yield to maturity, the bond is selling at a premium b) The price of a semi-annual or an annual coupon paying bond will be the same if their coupon rate is the same as yield to maturity regardless of differences in maturity c) The concept of yield to maturity suffers from the reinvestment assumption for both semi-annual and annual coupon paying bonds d) If I invest \$100 in a 10% coupon, 2-year bond at par, I will certainly get \$121 at the end of the two years

45. **[Final]** An executive is given two choices, either receive nontransferable one-year European call options on 1000 shares with an exercise price of 100 or get an extra \$1,000 in bonus at the end of the year for every point that the company's stock exceeds 100 dollars. Which bonus plan should she choose to provide her with the largest dollar payout?

- a) Take the options
- b) Take the money
- c) They are the same

46. **[Final]** If the stock price falls and the call price rises, then what has happened to the call option's implied volatility (assuming nothing else has changed)? a) UP b) Down c) Same d) Can't tell

47. **[Final]** Two-year zero coupon securities have greater price volatility than one-year zero-coupon securities over an identical one month period: a) under all circumstances b) when investors are risk averse c) only for parallel shifts in a flat yield curve d) as long as the law of one price holds

48. **[Final]** The price (per \$100 face value) of a 7% semi-annual pay bond with exactly 2-1/2 years to maturity and a yield to maturity of 8.75% is: a) 93.4381 b) 96.9111 c) 96.1454 d) none of the above

49. **[Midterm]** Assuming the plowback ratio (b) is greater than zero and less than one, if a company has a higher ROE on its investments, then all else the same, which of the following must be true (more than one may be correct):

- a) the P/E ratio of its stock will be higher
- b) the stock's beta will be higher
- c) the company's growth rate will be higher
- d) the implied volatility of call options on the stock will be lower

50. **[Final]** Suppose the current price of XYZ stock is \$50. You buy a call on XYZ with a strike price of 55 for \$6 and buy a put on XYZ with a strike price of 45 for \$5, both options to expire in one month (this position is known as a strangle). Based on this information alone, your position will make money on expiration if XYZ's stock price is above \$___ or below \$___.

SAMPLE FINAL ANSWERS

- 1. C
- 2. A

- 3. B
- 4. C
- 5. D
- 6. D
- 7. D
- 8. D
- 9. D
- 10. B
- 11. B
- 12. C
- 13. D
- 14. D
- 15. D
- 16. A
- 17. C
- 18. D
- 19. A
- 20. B
- 21. C
- 22. B
- 23. D
- 24. C
- 25. A
- 26. D
- 27. C
- 28. B, D
- 29. B
- 30. A
- 31. A
- 32. B
- 33. D
- 34. C
- 35. D
- 36. C
- 37. C
- 38. C
- 39. D
- 40. D
- 41. E
- 42. E
- 43. D
- 44. D
- 45. C
- 46. A
- 47. C
- 48. C
- 49. A, C
- 50. 66, 34