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

**MULTIPLE CHOICE - Choose the one alternative that best completes the statement or answers the question.  
1)** The value of a financial instrument called a derivative is derived from a:

1) \_\_\_\_\_\_

A) regulatory body such as the FTC.   
 B) primitive or underlying asset.  
 C) specified risk.  
 D) negotiated contract.  
 E) probability of occurrence.

**2)** Derivatives can be used to either hedge or speculate. These strategies:

2) \_\_\_\_\_\_

A) increase risk in both cases.   
 B) decrease risk in both cases.  
 C) spread or minimize risk in both cases.  
 D) offset risk by hedging and increase risk by speculating.  
 E) offset risks by speculating and increase risk by hedging.

**3)** The parties in a forward contract agree today to either purchase or sell an asset or security:

3) \_\_\_\_\_\_

A) at a later date, at a price to be set in the future.   
 B) today, at the current market price.  
 C) at a later date, at a price set today.  
 D) if it is advantageous to do so in the future.  
 E) with delivery today and payment in the future.

**4)** The buyer of a forward contract:

4) \_\_\_\_\_\_

A) takes delivery of the goods today, at today’s price.   
 B) makes delivery of the goods at a later date, at that date’s price.  
 C) makes delivery of the goods today, at today’s price.  
 D) takes delivery of the goods at a later date, at a pre-specified price.  
 E) decides on a future date whether or not to take delivery at a pre-specified price.

**5)** Which of the following statements describes the primary difference between a forward contract and a cash transaction?

5) \_\_\_\_\_\_

A) A forward contract provides an option while a cash transaction is an obligation.   
 B) A forward contract is fulfilled at a later date while the cash transaction is carried out immediately.  
 C) The price of a forward contract is decided at a later date while a cash transaction occurs at the current spot rate.  
 D) A cash transaction can be reversed but a forward contract cannot.  
 E) The forward contract can be negotiated while a cash transaction cannot.

**6)** Which one of the following actions or features is *not* associated with a forward contract?

6) \_\_\_\_\_\_

A) Making delivery   
 B) Taking delivery  
 C) Deliverable instrument  
 D) Cash transaction  
 E) Delayed delivery

**7)** A potential disadvantage of forward contracts relative to futures contracts is:

7) \_\_\_\_\_\_

A) the extra liquidity required to cover the potential outflows that can occur prior to delivery.   
 B) the higher incentive for a particular party to default.  
 C) that the buyers and sellers don’t know each other and never meet.  
 D) the obligatory requirements rather than the optional opportunities.  
 E) the increased ability to close out a position prior to expiration.

**8)** A 6-month futures contract on gold is priced at $1,800 per troy ounce when the contract is initiated. If the price of gold rises every day over the 6-month period, then when the contract is settled, the buyer will \_\_\_\_\_ and the seller will \_\_\_\_\_.

8) \_\_\_\_\_\_

A) lose; gain   
 B) gain; lose  
 C) gain; break even  
 D) gain; gain  
 E) lose; lose

**9)** Unlike forward contracts, futures contracts:

9) \_\_\_\_\_\_

A) provide an option for the buyer, rather than an obligation.   
 B) mark to the market on a weekly basis.  
 C) allow the seller to deliver any day during the delivery month.  
 D) allow the parties to negotiate the contract size.  
 E) require contract fulfillment by the two originating parties.

**10)** Futures contracts:

10) \_\_\_\_\_\_

A) are traded off-exchange.   
 B) require delivery on a specific date.  
 C) are standardized.  
 D) are individually negotiated.  
 E) marked to market on a weekly basis.

**11)** Which one of the following parties would generally have the greatest reason to take a short hedge position in the agricultural futures market?

11) \_\_\_\_\_\_

A) A local bakery   
 B) A wheat farmer  
 C) A major breakfast food company  
 D) A beverage maker  
 E) An international investor

**12)** A tortilla manufacturer who needs corn to make cornmeal most likely uses the futures market for taking a:

12) \_\_\_\_\_\_

A) long hedge position to lock in production costs.   
 B) short hedge position to lock in delivery.  
 C) long hedge position to lock in a sales price for flour.  
 D) seller’s position in wheat.  
 E) speculator’s position in corn.

**13)** Of the following choices, the firm most likely to take a long position in agriculture futures is the firm that:

13) \_\_\_\_\_\_

A) harvests lumber.   
 B) raises wheat.  
 C) harvests soybeans.  
 D) uses corn to make packaged popcorn.  
 E) supplies flaxseed to cooking oil manufacturers.

**14)** If the producer of a product has entered into a fixed price sale agreement for their output, the producer generally faces:

14) \_\_\_\_\_\_

A) a nice steady profit because the output price is fixed.   
 B) an uncertain profit if the input prices are volatile. This risk can be reduced by a short hedge.  
 C) an uncertain profit if the input prices are volatile. This risk can be reduced by a long hedge.  
 D) a modest profit if the input prices are stable. This risk can be reduced by a long hedge.  
 E) a modest profit if the input prices are stable. This risk can be reduced by a short hedge.

**15)** Assume you hold a futures contract to take delivery of U.S. Treasury bonds in 6 months. If the entire term structure of interest rates shifts downward during the 6-month period, the value of the forward contract will have \_\_\_\_\_ the date of delivery.

15) \_\_\_\_\_\_

A) increased in value by   
 B) decreased in value by  
 C) the same value as when obtained on  
 D) either decreased in value or have a zero value by  
 E) zero value by

**16)** What is the primary way in which mortgage bankers earn income?

16) \_\_\_\_\_\_

A) Speculating in Treasury futures   
 B) Collecting interest on long-term mortgages  
 C) Offsetting long and short hedge positions in Treasury futures  
 D) Charging origination and servicing fees  
 E) Hedging all interest rate risk

**17)** To protect against interest rate risk, the mortgage banker who has committed to lending funds, but has yet to raise those funds should:

17) \_\_\_\_\_\_

A) buy futures, as this position will hedge losses if rates rise.   
 B) sell futures, as this position will hedge losses if rates rise.  
 C) sell futures, as this position will add to his gains if rates rise.  
 D) buy futures, as this position will add to his gains if rates rise.  
 E) avoid the futures market.

**18)** Futures market transactions are commonly used to reduce risk. The greatest amount risk reduction can be obtained when the asset at risk and the futures contract have:

18) \_\_\_\_\_\_

A) different maturities.   
 B) payoff schedules that differ.  
 C) differing volatilities.  
 D) uncorrelated price movements.  
 E) perfectly correlated price movements.

**19)** Hedging in the futures markets can reduce all risk if:

19) \_\_\_\_\_\_

A) price movements in both the cash and futures markets are perfectly correlated.   
 B) price movements in both the cash and futures markets have zero correlation.  
 C) price movements in both the cash and futures markets are less than perfectly correlated.  
 D) the hedge is a short hedge, but not a long hedge.  
 E) the hedge is a long hedge, but not a short hedge.

**20)** Long-term bonds are \_\_\_\_\_\_\_\_ volatile short-term bonds and therefore experience a(n) \_\_\_\_\_\_\_\_ change in price than short-term bonds in response to the same change in interest rates.

20) \_\_\_\_\_\_

A) less; lesser   
 B) less; greater  
 C) more; greater  
 D) more; lesser  
 E) more; equivalent

**21)** In response to a change in interest rates, the price of zero coupon bonds are \_\_\_\_ volatile \_\_\_\_

21) \_\_\_\_\_\_

A) more; if they have a short maturity rather than a long maturity.   
 B) not; because their duration always matches their maturity.  
 C) equally; regardless of their maturity.  
 D) less; than coupon bonds of the same maturity.  
 E) more; than coupon bonds of the same maturity.

**22)** The duration of a pure discount bond is:

22) \_\_\_\_\_\_

A) equal to its half-life.   
 B) less than that of a comparable coupon bond.  
 C) independent of the bond’s maturity.  
 D) equal to the bond’s maturity.  
 E) always equal to one year.

**23)** Given a stated change in market interest rates, higher coupon bonds experience a \_\_\_\_\_\_\_\_ price change in percentage terms as compared to lower coupon bonds of the same maturity.

23) \_\_\_\_\_\_

A) greater   
 B) smaller  
 C) similar  
 D) equal  
 E) zero

**24)** Of the following choices, the bonds with the greatest potential price volatility are:

24) \_\_\_\_\_\_

A) short-term, high-coupon bonds.   
 B) long-term, low-coupon bonds.  
 C) long-term, zero-coupon bonds.  
 D) short-term, zero-coupon bonds.  
 E) short-term, low-coupon bonds.

**25)** Which one of the following bonds has the highest duration?

25) \_\_\_\_\_\_

A) 15-year high coupon   
 B) 15-year zero coupon  
 C) 10-year zero coupon  
 D) 10-year high coupon  
 E) 15-year low coupon

**26)** Which one of the following bonds will have the lowest percentage price change in response to a stated shift in interest rates?

26) \_\_\_\_\_\_

A) 5-year, zero coupon   
 B) 5-year, high coupon  
 C) 5-year, low coupon  
 D) 10-year, low coupon  
 E) 10-year, high coupon

**27)** A financial institution can hedge its interest rate risk by:

27) \_\_\_\_\_\_

A) matching the duration of its assets to the duration of its liabilities.   
 B) setting the duration of its assets equal to half that of the duration of its liabilities.  
 C) matching the duration of its assets, weighted by the market value of its assets with the duration of its liabilities, weighted by the market value of its liabilities.  
 D) setting the duration of its assets, weighted by the market value of its assets to one half that of the duration of the liabilities, weighted by the market value of the liabilities.  
 E) setting the duration of its assets equal to 1.0.

**28)** Neha wants to own bonds but also wants their market values to remain as steady as possible. Which type of bonds are best suited for her?

28) \_\_\_\_\_\_

A) High-coupon, short-term   
 B) Zero-coupon, long-term  
 C) High-coupon, long-term  
 D) Low-coupon, short term  
 E) Zero coupon, short term

**29)** The duration of a coupon bond is:

29) \_\_\_\_\_\_

A) equal to its number of payments.   
 B) less than that of a zero coupon bond of equal maturity.  
 C) equal to the zero coupon bond of the same maturity.  
 D) equal to its maturity.  
 E) increases as the time to maturity decreases.

**30)** A financial institution has equity equal to one-tenth of its assets. If its asset duration is currently equal to its liability duration, then to immunize, the firm needs to:

30) \_\_\_\_\_\_

A) decrease the duration of its assets.   
 B) increase the duration of its assets.  
 C) decrease the duration of its liabilities.  
 D) maintain the equal durations.  
 E) increase either the duration of its assets or of its liabilities.

**31)** If a financial institution has equated the dollar effects of interest rate risk on its assets with the dollar effects on its liabilities, it has engaged in:

31) \_\_\_\_\_\_

A) a long futures hedge.   
 B) a short futures hedge.  
 C) a protected swap.  
 D) hedging by matching.  
 E) hedging by swapping.

**32)** Duration is a measure of the:

32) \_\_\_\_\_\_

A) yield to maturity of a bond.   
 B) coupon yield of a bond.  
 C) price of a bond.  
 D) effective maturity of a bond.  
 E) probability of a bond defaulting.

**33)** A swap is an arrangement between two counterparties who:

33) \_\_\_\_\_\_

A) exchange cash flows over time.   
 B) permit fluctuation in interest rates.  
 C) help exchange markets clear.  
 D) temporarily exchange fixed assets.  
 E) insure natural catastrophes.

**34)** LIBOR stands for:

34) \_\_\_\_\_\_

A) London Interest Basis Offered Rate.   
 B) London International Offered Rate.  
 C) London Interbank Offered Rate.  
 D) London Interagency Offered Rate.  
 E) London International Option Rate.

**35)** Interest rate swaps allow one party to exchange a:

35) \_\_\_\_\_\_

A) floating interest rate for a fixed rate.   
 B) fixed interest rate for a lower fixed rate.  
 C) floating interest rate for a lower floating rate.  
 D) floating interest rate for a one-time immediate cash payment.  
 E) fixed interest rate for a one-time future cash payment.

**36)** A U.S. firm involved in foreign exports is most likely to highly engage in:

36) \_\_\_\_\_\_

A) inverse floaters.   
 B) super floaters.  
 C) Treasury futures.  
 D) currency swaps.  
 E) interest rate swaps.

**37)** An inverse floater and a super-inverse floater probably become the most valuable to a purchaser when:

37) \_\_\_\_\_\_

A) interest rates remain constant.   
 B) interest rates fall.  
 C) interest rates rise.  
 D) their maturities are shorter rather than longer.  
 E) capped and floored.

**38)** Assume a firm has a floating-rate loan and purchases a 10 percent cap on that loan. As a result, the firm will receive payments equal to:

38) \_\_\_\_\_\_

A) .10 × Assets.   
 B) .10 × Annual interest payment.  
 C) (LIBOR − .10) × Principal loan amount.  
 D) (LIBOR + .10) × Principal loan amount.  
 E) .10 × Principal loan amount.

**39)** Caps and floors are used in conjunction with derivatives to:

39) \_\_\_\_\_\_

A) limit any impact from interest rate changes.   
 B) increase the rate of return to the derivative holder.  
 C) increase the volatility of the at-risk asset.  
 D) offset the costs associated with establishing the derivative position.  
 E) lower acquisition costs irrespective of financing costs.

**40)** Credit default swaps:

40) \_\_\_\_\_\_

A) have no standardized agreement template.   
 B) are traded on international exchanges.  
 C) are traded only on national exchanges.  
 D) are rarely used in actual practice.  
 E) must follow the structure outlined by the SEC.

**41)** Credit default swaps are most like:

41) \_\_\_\_\_\_

A) inverse floaters.   
 B) call options on fixed assets.  
 C) an insurance policy.  
 D) an interest rate swap.  
 E) a delinquent loan.

**42)** There are always at least \_\_\_ counterparties in a credit default swap.

42) \_\_\_\_\_\_

A) 0   
 B) 1  
 C) 2  
 D) 3  
 E) three or more

**43)** Which one of the following statements is true about the use of derivatives?

43) \_\_\_\_\_\_

A) Derivatives usually appear explicitly in the financial statements.   
 B) Academic surveys account for much of our knowledge of corporate derivatives use.  
 C) Small firms are more likely to use derivatives than large firms.  
 D) The most frequently used derivatives are commodity and equity futures.  
 E) Derivatives are primarily used by firms that have easy access to capital markets.

**44)** Today, you purchased two natural gas futures contracts at the settle price for a May delivery. The contract size is 10,000 MMBtu with quotes in dollars per MMBtu. The day’s high was 2.954, the low was 2.939, and the settle was 2.948. What was the total amount you had to pay today?

44) \_\_\_\_\_\_

A) $14,740   
 B) $14,695  
 C) $14,770  
 D) $14,755  
 E) $0

**45)** Assume you write a futures contract on corn at $4.35 per bushel. Over the next 5 trading days the contract settled at $4.38, $4.36, $4.34, $4.32, and $4.34. You then decide to reverse your position in the futures market on the fifth day at close. What is the net amount you receive on this contract per bushel?

45) \_\_\_\_\_\_

A) $4.35   
 B) $4.34  
 C) $4.37  
 D) $4.38  
 E) $4.36

**46)** Assume you write a futures contract on corn at $4.40 per bushel. Over the next 5 days the contract settles at $4.35, $4.37, $4.32, $4.30, and $4.25. Before you can reverse your position in the futures market you are notified to complete delivery on Day 5. What will you receive on delivery per bushel and what is the net amount per bushel you receive in total?

46) \_\_\_\_\_\_

A) $4.40; −$.15   
 B) $4.40; $.15  
 C) $4.40; $4.55  
 D) $4.25; $4.40  
 E) $4.25; $4.55

**47)** You bought a futures contract on corn for $3.55 per bushel and closed the contract five days later at $3.56. The daily closing prices were $3.57, $3.54, $3.53, $3.58, and $3.56. What was the mark-to-market sequence of payments per bushel from (+) and to (−) the clearing house?

47) \_\_\_\_\_\_

A) +$.02, −.03, −.01, +.05, −.02   
 B) +$.01, −.03, −.01, +.05, −.02  
 C) +$.02, +.01, −.02, −.06, +.04  
 D) −$.02, +.03, +.01, −.05, +.02  
 E) −$.01, +.03, +.01, −.05, +.02

**48)** Today, you purchased a futures contract obligating you to purchase 500 troy ounces of gold for $1,816 per ounce any time over the next month. Assume the spot price of gold falls to $1,814 tomorrow. What will be your cash flow tomorrow for this contract?

48) \_\_\_\_\_\_

A) −$1,000   
 B) $500  
 C) $0  
 D) −$500  
 E) $1,000

**49)** Last week, you sold a futures contract on 5,000 troy ounces of silver at a settle price of $23.10. Today, you made delivery and the daily settle price was $23.15. What amount will you receive at the time of delivery? Assume yesterday's settle price was $23.19.

49) \_\_\_\_\_\_

A) $115,500   
 B) −$200  
 C) $115,750  
 D) $25,000  
 E) $115,950

**50)** Assume a futures contract on gold is based on 100 troy ounces with prices quoted in dollars per troy ounce. Assume one contract called for delivery some time during the month of April. The price of gold opened the month at $1,194. The low quote for April was $1,189, the high was $1,212, and the end of month settle quote was $1,197. By what amount did the value on one contract vary over the month of April?

50) \_\_\_\_\_\_

A) $30   
 B) $23  
 C) $3,000  
 D) $2,300  
 E) $300

**51)** Assume the futures contracts on silver are quoted in dollars per troy ounce with a contract size of 5,000 troy ounces. Contract quotes for the day included an open value of $16.650, a high of $16.660, a low of $16.620, and a settle of $16.645. If you purchased three contracts at the closing price what was the dollar cost of your purchase ignoring all transaction costs?

51) \_\_\_\_\_\_

A) $83,250   
 B) $82,500  
 C) $249,675  
 D) $249,750  
 E) $83,225

**52)** Assume a bank has a $25 million mortgage bond risk position which it hedges in the Treasury bond futures market. Approximately how many futures contracts would be needed for this hedge if you assumed mortgage bonds and Treasury bonds were perfectly correlated?

52) \_\_\_\_\_\_

A) 5   
 B) 25  
 C) 250  
 D) 500  
 E) 2,500

**53)** A mortgage banker has forward contracts to lend $12 million at 4.5 percent for 15 years. What position in Treasury bond futures does this banker need to hedge the interest rate risk?

53) \_\_\_\_\_\_

A) Short position in 12 contracts   
 B) Short position in 120 contracts  
 C) Long position in 12 contracts  
 D) Long position in 120 contracts  
 E) Long position in 1,200 contracts

**54)** Assume a bond matures in 2 years, has a coupon rate of 6 percent, pays interest annually, and has a face value of $1,000. What is the duration of this bond if it is priced at par?

54) \_\_\_\_\_\_

A) 1.00 year   
 B) 1.94 years  
 C) 1.97 years  
 D) 1.91 years  
 E) 2.03 years

**55)** Alpha Corporation is paying $300,000 in fixed interest payments per year while Gamma Corporation is paying LIBOR plus 30 basis points on $5 million loans. The current LIBOR rate is 5.5 percent. Alpha Corporation and B have agreed to swap interest payments. What is the net payment between these firms this year?

55) \_\_\_\_\_\_

A) Alpha Corporation pays $10,000 to Gamma Corporation   
 B) Gamma Corporation pays $10,000 to Alpha Corporation   
 C) Gamma Corporation pays $12,500 to Alpha Corporation   
 D) Alpha Corporation pays $15,000 to Gamma Corporation   
 E) Gamma Corporation pays $15,000 to Alpha Corporation

**56)** Calculate the duration of a $1,000 zero coupon bond with a current price of $531.01, a maturity of 7 years, and a yield to maturity of 9.25 percent.

56) \_\_\_\_\_\_

A) 6.78 years   
 B) 6.87 years  
 C) 7.23 years  
 D) 7.00 years  
 E) 7.15 years

**57)** Calculate the duration of a $1,000 face value bond with annual coupon payments, a coupon rate of 7 percent, a maturity of 4 years, and a yield to maturity of 8.2 percent.

57) \_\_\_\_\_\_

A) 3.49 years   
 B) 3.62 years  
 C) 3.69 years  
 D) 3.81 years  
 E) 3.74 years

**58)** Community Bank has total assets with a market value of $14.23 million and a duration of 2.64 years. The bank's liabilities equal $12.87 million and its equity is $1.36 million on a market value basis. To hedge interest rate risk, what duration should the bank seek for its liabilities?

58) \_\_\_\_\_\_

A) 2.86 years   
 B) 2.78 years  
 C) 2.39 years  
 D) 2.48 years  
 E) 2.92 years

**59)** You have gathered the following market value and duration information on Capital Banking System:

|  |  |  |
| --- | --- | --- |
| **Assets:** | **Market value (in millions)** | **Duration** |
| **Overnight money** | $ 3.1 | .0 |
| **1-year Treasury Securities** | 7.4 | .6 |
| **Loans** | 18.6 | 2.1 |
| **Mortgages** | 9.3 | 7.6 |
|  | $ 38.4 |  |
| **Liabilities:** |  |  |
| **Checking accounts** | $ 14.6 | .0 |
| **Short-term CD’s** | 4.1 | .3 |
| **Long-term CD’s** | 11.6 | 3.1 |
|  | $ 30.3 |  |

Calculate the duration of the bank’s assets and of its liabilities.

59) \_\_\_\_\_\_

A) 2.86 years; 1.23 years   
 B) 2.97 years; 1.06 years  
 C) 2.86 years; 1.06 years  
 D) 2.48 years; 1.06 years  
 E) 2.97 years; 1.23 years

**60)** You have gathered the following market value and duration information on Friendly Bank:

|  |  |  |
| --- | --- | --- |
| **Assets:** | **Market value (in millions)** | **Duration** |
| **Overnight money** | $ 3.7 | .0 |
| **1-year Treasury securities** | 8.2 | .5 |
| **Loans** | 11.6 | 1.8 |
| **Mortgages** | 11.9 | 7.9 |
|  | $ 35.4 |  |
| **Liabilities:** |  |  |
| **Checking accounts** | $ 13.9 | .0 |
| **Short-term CD’s** | 4.5 | .4 |
| **Long-term CD’s** | 10.9 | 3.5 |
|  | $ 29.3 |  |

What new asset duration will immunize the balance sheet?

60) \_\_\_\_\_\_

A) 1.22 years   
 B) .99 years  
 C) 1.36 years  
 D) 1.48 years  
 E) 1.13 years

**ESSAY. Write your answer in the space provided or on a separate sheet of paper.  
61)** The futures markets are considered by some to be highly risky and equivalent to gambling. Why is this an inaccurate portrayal of the market’s function?

**62)** Identify several of the differences between a forward contract and a futures contract.

**63)** Duration is defined as the weighted average time to maturity of a financial instrument. List at least four other key things you know about duration.

**64)** Explain why credit default swaps act like an insurance policy.

**Answer Key**Test name: Chapter 25

1) B

2) D

3) C

4) D

5) B

6) D

7) B

8) B

9) C

10) C

11) B

12) A

13) D

14) C

15) A

16) D

17) B

18) E

19) A

20) C

21) E

22) D

23) B

24) C

25) B

26) B

27) C

28) A

29) B

30) A

31) D

32) D

33) A

34) C

35) A

36) D

37) B

38) C

39) A

40) A

41) C

42) C

43) B

44) E

Daily mark-to-market payments will start with the next trading day with the final payment occurring at delivery.  
 No payment is required at time of purchase.

45) A

Net amount received = −$.03 +.02 + .02 + .02 − .02 + 4.34  
 Net amount received = $4.35

46) D

Delivery is made at the settle price of $4.25.  
 Net amount received = $.05 − .02 + .05 + .02 + .05 + 4.25  
 Net amount received = $4.40

47) A

Marked-to-market sequence = +$.02, −.03, −.01, +.05, −.02

48) A

∆ Futures Position = 500($1,814 − 1,816)  
 ∆ Futures Position = −$1,000

49) C

Amount received at delivery = 5,000($23.15)  
 Amount received at delivery = $115,750

50) D

Dollar variation = 100($1,212 − 1,189)  
 Dollar variation = $2,300

51) C

Cost = 3(5,000)($16.645)  
 Cost = $249,675

52) C

Number of futures contracts = $25,000,000/$100,000  
 Number of futures contracts = 250

53) B

Number of short positions = $12,000,000/$100,000  
 Number of short positions = 120

54) B

Since the bond is selling at par, the market rate of interest equals the coupon rate.  
   
 Duration = [($60/1.06)(1) + ($1,060/1.062)(2)]/$1,000  
 Duration = 1.94

55) B

Gamma pays a fixed payment of $300,000 to Alpha in exchange for the floating payment of $290,000 = [(.055 + .0030)($5,000,000)]. The required net payment is $10,000 paid by Gamma to Alpha.

56) D

The duration of a zero coupon bond equals to its maturity:  
 Duration = 7 years

57) B

Coupon payment = .07($1,000)  
 Coupon payment = $70  
 Duration = 3.6159, or 3.62 years as shown in the table below:

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Time Period** | **Cash Flow** | **PV of Cash Flow (8.2%)** | **Relative Value** | **Duration** |
| **1** | $ 70 | $ 64.70 | .0674 | .0674 |
| **2** | 70 | 59.79 | .0623 | .1245 |
| **3** | 70 | 55.26 | .0575 | .1726 |
| **4** | 1,070 | 780.68 | .8128 | 3.2514 |
| **Totals:** |  | $ 960.43 | 1.0000 | 3.6159 |

58) E

Duration of assets × Market value of assets = Duration of liabilities × Market value of liabilities  
 Duration of liabilities = 2.64($14.23 million)/$12.87 million  
 Duration of liabilities = 2.92 years

59) E

*D*A = (3.1/38.4)(0) + (7.4/38.4)(.6) + (18.6/38.4)(2.1) + (9.3/38.4)(7.6)  
 *D*A = 2.97 years  
 *D*L = (14.6/30.3)(0) + (4.1/30.3)(.3) + (11.6/30.3)(3.1)  
 *D*L = 1.23 years

60) E

*D*L = (13.9/29.3)(0) + (4.5/29.3)(.4) + (10.9/29.3)(3.5)  
 *D*L = 1.36 years  
 Duration of assets × Market value of assets = Duration of liabilities × Market value of liabilities  
 Duration of assets = 1.36($29.3 million)/$35.4 million  
 Duration of assets = 1.13 years

61) The market sets (discovers) the price on an exchange; thus, prices are considered to be fair.  
   
 Futures can be used to hedge positions in other assets thereby reducing overall risk.  
   
 Positions are marked to market daily which reduces the probability of one party defaulting.  
   
 The futures market is generally liquid so positions can be closed out at any time.  
   
 The futures market is a zero-sum game; every $1 loss is offset by a $1 gain.

62) Forward contracts:  
 Off-exchange transaction  
 Individually negotiated contract terms  
 Single-day delivery  
 Fairly illiquid market  
   
 Futures contracts:  
 Trade on an exchange  
 Standardized contract specifications  
 Marked to market daily  
 Delivery on any day within the delivery month  
 Buyers generally selected at random  
 Lower probability of default  
 Generally a liquid market

63) 1.Low coupon bonds have a higher duration than high coupon bonds with the same time to maturity.  
 2.Long-term bonds have a higher duration than short-term bonds with the same coupon rate.  
 3.Zero coupon bonds have a duration equal to their time to maturity.  
 4.The percentage price change of a bond with a high duration is greater than the percentage price change of a bond with a low duration given a stated change in market interest rates.  
 5.Matching the duration of assets and liabilities will hedge interest rate risk.

64) If you obtain insurance, you pay periodic premiums to the insurance company in exchange for the insurance company paying your claims (losses). With a credit default swap, one counterparty pays periodic payments to the second counterparty in exchange for the second counterparty paying the par value of a bond if and when the bond defaults (losses).