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

**MULTIPLE CHOICE - Choose the one alternative that best completes the statement or answers the question.  
1)** A \_\_\_\_\_ bond makes no coupon payments and is initially priced at a deep discount.

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

A) Treasury   
 B) municipal  
 C) floating-rate  
 D) junk  
 E) zero coupon

**2)** The stated interest payment, in dollars, made on a bond each period is called the bond’s:

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

A) coupon.   
 B) face value.  
 C) maturity.  
 D) yield to maturity.  
 E) coupon rate.

**3)** A bond’s principal amount, which is repaid at the end of the loan term, is called the:

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

A) coupon.   
 B) face value.  
 C) maturity.  
 D) yield to maturity.  
 E) coupon rate.

**4)** The principal amount of a bond must be repaid on the bond’s \_\_\_\_\_ date.

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

A) coupon   
 B) face value  
 C) maturity  
 D) yield to maturity  
 E) issue

**5)** The rate of return required by investors in the market for owning a bond is called the:

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

A) coupon.   
 B) face value.  
 C) maturity.  
 D) yield to maturity.  
 E) coupon rate.

**6)** The \_\_\_\_\_ is the annual interest amount paid by a bond divided by the bond’s face value.

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

A) coupon   
 B) face value  
 C) maturity  
 D) yield to maturity  
 E) coupon rate

**7)** A\_\_\_\_\_ bond has a face value of $1,000 and a market price of $1,000.

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

A) par value   
 B) discount  
 C) premium  
 D) zero coupon  
 E) floating rate

**8)** A \_\_\_\_\_ bond has a face value of $1,000 and a market price of less than $1,000.

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

A) par value   
 B) discount  
 C) premium  
 D) zero coupon  
 E) floating rate

**9)** A bond with a coupon rate of 6 percent that pays interest semiannually and is priced at par will have a market price of \_\_\_\_\_ and interest payments in the amount of \_\_\_\_\_ each.

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

A) $1,006; $60   
 B) $1,060; $30  
 C) $1,060; $60  
 D) $1,000; $30  
 E) $1,000; $60

**10)** All else constant, a bond will sell at \_\_\_\_\_ when the yield to maturity is \_\_\_\_\_ the coupon rate.

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

A) a premium; greater than   
 B) a premium; equal to  
 C) at par; greater than  
 D) at par; less than  
 E) a discount; greater than

**11)** All else constant, a coupon bond that is selling at a premium must have:

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

A) a coupon rate that is equal to the yield to maturity.   
 B) a market price that is less than par value.  
 C) semiannual interest payments.  
 D) a yield to maturity that is less than the coupon rate.  
 E) a coupon rate that is less than the yield to maturity.

**12)** The market price of a bond increases when the:

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

A) face value decreases.   
 B) coupon rate decreases.  
 C) discount rate decreases.  
 D) par value decreases.  
 E) coupon is paid annually rather than semiannually.

**13)** Aspen leaf is preparing a bond offering with a coupon rate of 5.5 percent. The bonds will be repaid in 10 years. The company plans to issue the bonds at par value and pay interest annually. Which one of the following statements is correct? Assume a face value of $1,000.

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

A) The bonds will pay 19 interest payments and one principal payment.   
 B) The bonds will initially sell at a discount.  
 C) At maturity, the bonds will pay a final payment of $1,027.50.  
 D) The bonds will pay twenty equal coupon payments.  
 E) At issuance, the bond's yield to maturity is 5.5 percent.

**14)** A par value bond offers a coupon rate of 7 percent with semiannual interest payments. The effective annual rate provided by these bonds must be:

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

A) equal to 3.5 percent.   
 B) greater than 3.5 percent but less than 4 percent.  
 C) equal to 7 percent.  
 D) greater than 7 percent but less than 8 percent.  
 E) equal to 14 percent.

**15)** Gloria purchased one 20-year bond at par value when it was initially issued. This bond has a coupon rate of 6 percent and matures 11 years from now. If the current market rate for this type and quality of bond is 6.4 percent, then Gloria should expect:

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

A) the bond issuer to increase the amount of all future interest payments.   
 B) the yield to maturity to remain constant due to the fixed coupon rate.  
 C) to realize a capital loss if she sold the bond at today’s market price.  
 D) today’s market price to exceed the face value of the bond.  
 E) the current yield today to be less than 6 percent.

**16)** Interest rate risk \_\_\_\_\_ as the time to maturity decreases and \_\_\_\_ as the coupon rate decreases.

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

A) decreases; increases   
 B) decreases; decreases  
 C) increases; increases  
 D) increases; decreases  
 E) increases; is unaffected

**17)** A zero coupon bond:

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

A) is sold at a large premium.   
 B) has a price equal to the future value of the face amount given a positive rate of return.  
 C) can only be issued by the U.S. Treasury.  
 D) has less interest rate risk than a comparable coupon bond.  
 E) has a market price that is computed using semiannual compounding of interest.

**18)** Which one of these bonds is the most interest-rate sensitive?

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

A) 5-year zero coupon bond   
 B) 10-year zero coupon bond  
 C) 5-year, 6 percent, annual coupon bond  
 D) 10-year, 6 percent, semiannual coupon bond  
 E) 10-year, 6 percent, annual coupon bond

**19)** The yield to maturity:

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

A) that is expected will be realized any time a bond is sold.   
 B) will exceed the coupon rate when the bond is selling at a premium.  
 C) equals the current yield for all annual coupon bonds.  
 D) can only be realized if a bond is purchased on the issue date at par value.  
 E) equals both the current yield and the coupon rate for par value bonds.

**20)** If a bond’s yield to maturity is less than its coupon rate, the bond will sell at a \_\_\_\_\_, and increases in market interest rates will:

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

A) discount; decrease this discount.   
 B) discount; increase this discount.  
 C) premium; decrease this premium.  
 D) premium; increase this premium.  
 E) premium; not affect this premium.

**21)** The longest term bonds ever issued had an initial maturity date of:

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

A) 25 years.   
 B) 50 years.  
 C) 100 years.  
 D) 1,000 years.  
 E) never as the bonds are perpetual.

**22)** All else held constant, interest rate risk will increase when the time to maturity:

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

A) decreases or the coupon rate increases.   
 B) decreases or the coupon rate decreases.  
 C) increases or the coupon rate increases.  
 D) increases or the coupon rate decreases.  
 E) decreases and the coupon rate equals zero.

**23)** Which one of these combinations of bond ratings represents a crossover situation?

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

A) BBB; Baa   
 B) BB; Ba  
 C) Ba; B  
 D) Baa; BB  
 E) B; CCC

**24)** The interest paid on any municipal bond is:

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

A) free of default risk.   
 B) subject to default risk and is exempt from state income taxation.  
 C) free of both default risk and federal income taxation.  
 D) exempt from federal income taxation and may or may not be exempt from state taxation.  
 E) taxable at the federal level and tax exempt at the state and local level.

**25)** The interest rate for a tax-exempt bond that equates to the rate paid on a taxable bond is computed as:

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

A) Taxable rate/(1 − *T*\*).   
 B) Tax-exempt rate × (1 − *T*\*).  
 C) Taxable rate − (1 + *T*\*).  
 D) Taxable rate × (1 − *T*\*).  
 E) Tax-exempt rate/(1 + *T*\*).

**26)** Bond dealers report all of their trading information using the system known as:

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

A) SEC-Bond.   
 B) Nasdaq.  
 C) FED trades.  
 D) FINRA.  
 E) TRACE.

**27)** Most of the trading in bonds is conducted:

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

A) in person on the floor of the NYSE.   
 B) by dealers located in Chicago.  
 C) by brokers on various trading floors.  
 D) electronically.  
 E) on the trading floor in Washington, DC.

**28)** Which entity provides a daily snapshot of bond prices for the most active issues?

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

A) Federal Reserve Bank   
 B) US Treasury Department  
 C) SEC  
 D) FINRA  
 E) NYSE

**29)** The dirty price of a bond is defined as the:

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

A) market price minus any taxes due on the accrued interest.   
 B) market price minus the accrued interest.  
 C) clean price minus the accrued interest.  
 D) quoted price plus the accrued interest.  
 E) clean price minus any taxes due on the accrued interest.

**30)** A newspaper listing of bond prices has an “Asked yield” column. This yield is based on the asked price and represents the:

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

A) yield to maturity.   
 B) difference between the current yield and the yield to maturity.  
 C) difference between the bond’s yield and the yield of a comparable Treasury issue.  
 D) coupon rate.  
 E) current yield.

**31)** A bond is listed in a newspaper at a bid of 103.2922. This quote should be interpreted to mean:

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

A) the bond will pay semiannual interest payments of $103.2922 per $1,000 of face value.   
 B) you can sell that bond at a price equal to 103.2922 percent of face value.  
 C) the bond will pay annual interest payments of $103.2922 per $1,000 of face value.  
 D) you can buy that bond at a price equal to 103.2922 percent of face value.  
 E) the bond dealer is willing to sell that bond for a price equal to 103.2922 percent of par.

**32)** The total price you pay to purchase a premium bond is referred to as the:

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

A) dirty price or the full price.   
 B) clean price or the invoice price.  
 C) invoice price or the par value.  
 D) dirty price or the par value.  
 E) clean price or the par value.

**33)** The profit that is earned on a bond trade by a bond dealer is called the:

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

A) asked price.   
 B) spread.  
 C) bid price.  
 D) accrued interest.  
 E) quote value.

**34)** The Fisher formula is expressed as \_\_\_\_\_ where *R* is the nominal rate, *r* is the real rate, and *h* is the inflation rate.

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

A) *r* = *Rh*   
 B) *R* = *rh*  
 C) 1 + *h* = (1 + *r*)/(1 + *R*)  
 D) 1 + *R* = (1 + *r*)/(1 + *h*)  
 E) 1 + *R* = (1 + *r*)(1 + *h*)

**35)** An increase in the rate of inflation will:

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

A) increase both the real and the nominal rate of interest.   
 B) decrease both the real and the nominal rate of interest.  
 C) increase the nominal interest rate while lowering the real interest rate.  
 D) increase the real interest rate but not affect the nominal interest rate.  
 E) increase the nominal interest rate but will not affect the real interest rate.

**36)** To increase your purchasing power when investing in a bond:

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

A) you must purchase that bond at a discount.   
 B) the nominal rate of return on that bond must be less than the inflation rate.  
 C) you should purchase a premium bond.  
 D) the nominal rate of return must equal or exceed the rate of inflation.  
 E) you must earn a positive real rate of return on that bond.

**37)** The promised coupon payments on a U.S. TIPS bond are specified in:

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

A) euros.   
 B) Canadian dollars.  
 C) nominal terms.  
 D) inflated terms.  
 E) real terms.

**38)** The monthly returns on U.S. Treasury bills over the past 50 years have:

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

A) exceeded inflation for all periods.   
 B) provided consistently positive monthly rates of return for investors.  
 C) ranged between zero and five percent on an annualized basis.  
 D) always been positive on a real basis.  
 E) sometimes been less than the monthly rate of inflation.

**39)** The relationship between nominal rates, real rates, and inflation is known as the:

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

A) Miller and Modigliani theorem.   
 B) Fisher effect.  
 C) Gordon growth model.  
 D) term structure of interest rates.  
 E) interest rate risk premium.

**40)** The relationship between nominal interest rates on default-free, pure discount securities and the time to maturity is called the:

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

A) liquidity effect.   
 B) Fisher effect.  
 C) term structure of interest rates.  
 D) inflation premium.  
 E) interest rate risk premium.

**41)** The \_\_\_\_\_ premium is that portion of a nominal interest rate or bond yield that represents compensation for expected future loss in purchasing power.

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

A) default risk   
 B) taxability  
 C) liquidity  
 D) inflation  
 E) interest rate risk

**42)** The \_\_\_\_\_ premium is that portion of the bond yield that represents compensation for potential difficulties that might be encountered should the bondholder wish to sell the bond prior to maturity.

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

A) default risk   
 B) taxability  
 C) inflation  
 D) liquidity  
 E) interest rate risk

**43)** The term structure of interest rates reflects the:

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

A) real rate of interest.   
 B) real rate of interest plus the inflation premium.  
 C) nominal interest rate plus the interest rate risk premium.  
 D) pure time value of money.  
 E) real rate, inflation premium, interest rate risk premium, and the liquidity premium.

**44)** An upward-sloping term structure of interest rates indicates that:

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

A) longer-term rates are higher than shorter-term rates.   
 B) investors should expect interest rates to decline in the future.  
 C) short- and intermediate-term rates are real rates while long-term rates are nominal rates.  
 D) the Fed is expected to decrease rates in the near term.  
 E) the larger the investment in dollars, the higher the interest rate paid.

**45)** The term structure of interest rates:

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

A) plots interest rates against bond ratings.   
 B) is just another name for the yield curve.  
 C) ignores interest rate risk premiums while the Treasury yield curve includes those premiums.  
 D) ignores both inflation and interest rate risk premiums.  
 E) is based on pure discount bonds while the Treasury yield curve is based on coupon bond yields.

**46)** The term structure of interest rates:

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

A) must be upward-sloping.   
 B) can be humped in the middle.  
 C) is downward-sloping when inflation is expected to rise.  
 D) obtains its slope from the real rate of return.  
 E) generally has the same degree of steepness each year.

**47)** Which of the following items is included in the return on a municipal bond but excluded from the return on a U.S. Treasury bond?

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

A) Inflation premium and liquidity premium   
 B) Taxability premium and interest rate risk premium  
 C) Default risk premium and interest rate risk premium  
 D) Inflation premium and default risk premium  
 E) Liquidity premium and default risk premium

**48)** Consider a bond with an annual coupon rate of 7 percent that pays semiannual interest and matures in ten years. The market rate of return on bonds of this risk is currently 3.5 percent. What is the current value of a $1,000 face value bond?

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

A) $1,291.08   
 B) $1,159.27  
 C) $1,293.18  
 D) $629.21  
 E) $1000.00

**49)** What is the value of a 20-year, zero-coupon bond with a face value of $1,000 when the market required rate of return is 9.6 percent, compounded semiannually?

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

A) $153.30   
 B) $192.40  
 C) $195.26  
 D) $168.31  
 E) $172.19

**50)** Chang, Incorporated, issued bonds with an annual coupon rate of 5 percent. Coupons are paid semiannually. The bonds mature in 12 years and have a $1,000 face value. The bonds are currently selling at par. What is the yield to maturity?

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

A) 2.97%   
 B) 3.97%  
 C) 4.17%  
 D) 5.00%  
 E) 2.50%

**51)** A corporate bond has a coupon of 7.5 percent and pays interest annually. The face value is $1,000 and the current market price is $1,108.15. The bond matures in 14 years. What is the yield to maturity?

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

A) 6.31%   
 B) 7.82%  
 C) 8.00%  
 D) 8.04%  
 E) 8.12%

**52)** Otto Enterprises has a bond issue outstanding with an annual coupon rate of 6 percent that matures in 9 years. The bond is currently priced at $1,046.92 and has a par value of $1,000. Interest is paid semiannually. What is the yield to maturity?

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

A) 5.34%   
 B) 4.83%  
 C) 2.67%  
 D) 2.77%  
 E) 5.54%

**53)** Franco, Incorporated, offers a bond with an annual coupon rate of 4.5 percent, semiannual payments, and a yield to maturity of 6.5 percent. The bond matures in 10 years. What is the market price of a $1,000 face value bond?

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

A) $531.71   
 B) $854.61  
 C) $856.22  
 D) $915.78  
 E) $707.32

**54)** Morris has an outstanding bond with a coupon rate of 5.5 percent that matures in 12 years. The bond pays interest semiannually. What is the market price of one $1,000 face value bond if the yield to maturity is 7.13 percent?

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

A) $934.59   
 B) $880.86  
 C) $870.01  
 D) $905.92  
 E) $947.87

**55)** Lancaster offers a bond with annual payments and a coupon rate of 5 percent. The yield to maturity is 5.62 percent and the maturity date is 9 years away. What is the market price of one $1,000 face value bond?

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

A) $942.66   
 B) $868.67  
 C) $869.67  
 D) $957.12  
 E) $1,009.59

**56)** The Wright Corporation offers a bond with a current market price of $1,029.75, a coupon rate of 8 percent, and a yield to maturity of 7.52 percent. The face value is $1,000. Interest is paid semiannually. How many years is it until this bond matures?

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

A) 8.5 years   
 B) 8.0 years  
 C) 9.0 years  
 D) 17 years  
 E) 16 years

**57)** Vo Restaurant Group has a semiannual, 5 percent coupon bond with a current market price of $988.52. The bond has a par value of $1,000 and a yield to maturity of 5.68 percent. How many years is it until this bond matures?

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

A) 1.5 years   
 B) 1.8 years  
 C) 2.1 years  
 D) 2.2 years  
 E) 1.6 years

**58)** A firm offers a zero coupon bond with a face value of $1,000 that matures in 10 years. What is the current market price if the yield to maturity is 7.6 percent, given semiannual compounding?

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

A) $474.30   
 B) $473.26  
 C) $835.56  
 D) $919.12  
 E) $1,088.00

**59)** Gray Corporation offers a $1,000 face value, zero coupon bond with a yield to maturity of 11.3 percent, given annual compounding. The bond matures in 16 years. What is the current price?

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

A) $178.78   
 B) $180.33  
 C) $188.36  
 D) $190.09  
 E) $192.18

**60)** The zero coupon bonds of Moore Medical have a market price of $394.47, a face value of $1,000, and a yield to maturity of 6.87 percent based on semiannual compounding. How many years is it until this bond matures?

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

A) 11.08 years   
 B) 10.49 years  
 C) 13.77 years  
 D) 12.64 years  
 E) 15.42 years

**61)** A $1,000 face value coupon bond will pay 5 percent interest annually for 12 years. What is the percentage change in the price of this bond if the market yield rises to 6 percent from the current level of 5.5 percent?

61) \_\_\_\_\_\_

A) −5.28%   
 B) −4.26%  
 C) −2.38%  
 D) 1.13%  
 E) 4.13%

**62)** Andrew’s has 5-year, 8 percent annual coupon bonds outstanding with a par value of $1,000. Boyega’s has 10-year, 8 percent annual coupon bonds outstanding with a par value of $1,000. Both bonds currently have a yield to maturity of 8 percent. Which one of the following statements is correct if the market rate decreases to 7 percent?

62) \_\_\_\_\_\_

A) Both bonds will decrease in value by 4.10 percent.   
 B) Andrew’s bond will increase in value by $52.10.  
 C) Boyega’s bond will increase in value by 4.61 percent.  
 D) Andrew’s bond will increase in value by $41.  
 E) Boyega’s bond will increase in value by 6.87 percent.

**63)** A zero coupon bond with a face value of $1,000 is issued with an initial price of $430.84 based on semiannual compounding. The bond matures in 20 years. What is the implicit interest, in dollars, for the first year of the bond’s life?

63) \_\_\_\_\_\_

A) $19.08   
 B) $22.56  
 C) $18.53  
 D) $21.47  
 E) $25.25

**64)** Khanijow’s wants to raise $12.4 million to expand its business. To accomplish this, it plans to sell 25-year, $1,000 face value, zero-coupon bonds. The bonds will be priced to yield 6.5 percent, with semiannual compounding. What is the minimum number of bonds the firm must sell to raise the $12.4 million it needs?

64) \_\_\_\_\_\_

A) 59,864   
 B) 52,667  
 C) 61,366  
 D) 60,107  
 E) 60,435

**65)** Jackson’s has $1,000 face value, zero-coupon bonds outstanding that mature in 13.5 years. What is the current value of one of these bonds if the market rate of interest is 7.6 percent? Assume semiannual compounding.

65) \_\_\_\_\_\_

A) $365.32   
 B) $401.12  
 C) $360.49  
 D) $378.17  
 E) $384.07

**66)** A 15-year corporate bond with a face value of $1,000 matures in 5 years and has an annual coupon rate of 4.5 percent. The current price of the bond is $1,069.14 and interest is paid semiannually. What is the yield to maturity?

66) \_\_\_\_\_\_

A) 1.66%   
 B) 1.50%  
 C) 1.94%  
 D) 3.89%  
 E) 3.00%

**67)** A bond has a coupon rate of 8.2 percent, a $1,000 par value, matures in 11.5 years, has a yield to maturity of 7.67 percent, and pays interest annually. What is the current yield?

67) \_\_\_\_\_\_

A) 7.89%   
 B) 8.21%  
 C) 8.43%  
 D) 7.67%  
 E) 8.52%

**68)** A 15-year bond has a coupon rate of 4.5 percent, a $1,000 par value, matures in 7 years, has a price of $1,105.50, and pays interest semiannually. What is the current yield?

68) \_\_\_\_\_\_

A) 1.41%   
 B) 1.79%  
 C) 2.04%  
 D) 4.07%  
 E) 2.83%

**69)** A 15-year bond has a coupon rate of 4 percent, a $1,000 par value, matures in 4 years, has a price of $1,085.30, and pays interest semiannually. What is the current yield?

69) \_\_\_\_\_\_

A) 1.84%   
 B) 3.69%  
 C) 1.78%  
 D) 0.89%  
 E) 1.64%

**70)** Paulina owns a corporate bond with a yield to maturity of 7.45 percent. She is in the 12 percent tax bracket. What is her equivalent rate of return on a municipal bond? Ignore state taxes.

70) \_\_\_\_\_\_

A) 6.17%   
 B) 5.89%  
 C) 6.56%  
 D) 8.26%  
 E) 8.47%

**71)** Currently, you own a municipal bond with a yield to maturity of 4.86 percent. If you are in the 24 percent tax bracket, what is your equivalent corporate tax rate? Ignore state taxes.

71) \_\_\_\_\_\_

A) 7.17%   
 B) 6.61%  
 C) 6.39%  
 D) 6.59%  
 E) 6.82%

**72)** A corporate bond has a coupon rate of 6 percent, a $1,000 face value, and matures two years from today. The corporation is in a serious financial situation and has announced that no future annual interest payments will be paid and that only 50 percent of the face value will be repaid but that payment will be delayed by one year. What is the current value of this bond to a bondholder with a required rate of return of 14 percent?

72) \_\_\_\_\_\_

A) $374.31   
 B) $358.40  
 C) $299.02  
 D) $337.49  
 E) $325.08

**73)** A corporate bond has a coupon rate of 5.5 percent, a $1,000 face value, and matures three years from today. The corporation is in a serious financial situation and has announced that no future annual interest payments will be paid and that the probability the entire face value will be repaid is only 75 percent. If the entire face value cannot be paid, then 60 percent of the face value will be repaid. All payments will be made three years from now. What is the current value of this bond at a discount rate of 15 percent?

73) \_\_\_\_\_\_

A) $591.76   
 B) $603.10  
 C) $611.90  
 D) $617.48  
 E) $622.04

**74)** Nicholas is buying a $1,000 face value bond at a quoted price of 99.486. The bond carries a coupon rate of 5.6 percent, with interest paid semiannually. The next interest payment is four months from today. What is the clean price of this bond?

74) \_\_\_\_\_\_

A) $994.86   
 B) $1,004.19  
 C) $1,013.53  
 D) $987.21  
 E) $1,005.73

**75)** Zaila is buying a $1,000 face value bond at a quoted price of 101.364. The bond carries a coupon rate of 7.75 percent, with interest paid semiannually. The next interest payment is two months from today. What is the dirty price of this bond?

75) \_\_\_\_\_\_

A) $1,039.47   
 B) $1,042.15  
 C) $1,056.02  
 D) $1,028.18  
 E) $1,026.56

**76)** Nihal just purchased a $1,000 face value bond at an invoice price of $1,288.16. The bond has a coupon rate of 6.2 percent, semiannual interest payments, and the next interest payment occurs one month from today. Of the amount paid for the bond, what was the dollar amount of the accrued interest?

76) \_\_\_\_\_\_

A) $25.83   
 B) $5.17  
 C) $31.00  
 D) $27.39  
 E) $6.20

**77)** A corporate bond is currently quoted at 101.633. What is the market price of a bond with a $1,000 face value?

77) \_\_\_\_\_\_

A) $1,000.28   
 B) $1,002.77  
 C) $1,016.33  
 D) $1,102.77  
 E) $1,276.70

**78)** The 5-year bond of Bulgarelli Corporation has a bid quote of 131.2891 and an asked quote of 131.3470. Assume you purchase one of these bonds with a face value of $5,000 and a coupon rate of 7.4 percent, paid semiannually. The next interest payment will be paid two months from today. What will be your invoice price for this purchase?

78) \_\_\_\_\_\_

A) $7,220.01   
 B) $6,690.68  
 C) $6,809.47  
 D) $7,001.32  
 E) $6,549.30

**79)** Last year, a bond yielded a nominal return of 6.06 percent while inflation averaged 1.82 percent. What was the real rate of return?

79) \_\_\_\_\_\_

A) 9.60%   
 B) 4.16%  
 C) 7.99%  
 D) 5.77%  
 E) 9.66%

**80)** A $1,000 par value bond carries an annual coupon rate of 6.65 percent and has a yield to maturity of 6.98 percent. The inflation rate is 1.28 percent. What is the bond's real rate of return?

80) \_\_\_\_\_\_

A) 8.02%   
 B) 4.03%  
 C) 5.63%  
 D) 8.35%  
 E) 5.30%

**81)** If a bond provides a real rate of return of 2.89 percent at a time when inflation is 3.21 percent, what is the nominal rate of return on the bond?

81) \_\_\_\_\_\_

A) 6.10%   
 B) 6.13%  
 C) 6.16%  
 D) 6.19%  
 E) 6.22%

**82)** The nominal rate of return on a bond is 7.28 percent while the real rate is 3.09 percent. What is the rate of inflation?

82) \_\_\_\_\_\_

A) 4.06%   
 B) 4.28%  
 C) 4.09%  
 D) 4.13%  
 E) 4.17%

**83)** Ivan wants to earn a real return of 3.4 percent on any bond he acquires. The inflation rate is 2.8 percent. He has determined that a particular bond he is considering should have an interest rate risk premium of .27 percent, a liquidity premium of .08 percent, and a taxability premium of 1.69 percent. What nominal rate of return is Stu demanding from this particular bond?

83) \_\_\_\_\_\_

A) 8.34%   
 B) 7.19%  
 C) 8.40%  
 D) 7.38%  
 E) 8.74%

**84)** An investment had a nominal return of 9.7 percent last year. The inflation rate was 2.7 percent. What was the real return on the investment?

84) \_\_\_\_\_\_

A) 7.57%   
 B) 6.38%  
 C) 9.52%  
 D) 6.82%  
 E) 12.66%

**85)** An investment had a nominal return of 10.1 percent last year. If the real return on the investment was only 7.8 percent, what was the inflation rate for the year?

85) \_\_\_\_\_\_

A) 2.13%   
 B) 10.39%  
 C) 2.09%  
 D) 2.37%  
 E) 18.69%

**86)** The inflation rate over the past year was 2.5 percent. If an investment had a real return of 7.7 percent, what was the nominal return on the investment?

86) \_\_\_\_\_\_

A) 5.07%   
 B) 10.97%  
 C) 10.39%  
 D) 11.55%  
 E) 4.83%

**87)** A bond that pays interest annually yields a rate of return of 7.75 percent. The inflation rate for the same period is 4 percent. What is the real rate of return on this bond?

87) \_\_\_\_\_\_

A) 1.94%   
 B) 4.00%  
 C) 3.61%  
 D) 11.75%  
 E) 1.04%

**88)** Gugenheim, Incorporated, has a bond outstanding with a coupon rate of 7.1 percent and annual payments. The yield to maturity is 8.3 percent and the bond matures in 23 years. What is the market price if the bond has a par value of $2,000?

88) \_\_\_\_\_\_

A) $1,755.39   
 B) $1,792.19  
 C) $1,757.05  
 D) $1,759.75  
 E) $1,762.07

**89)** Whatever, Incorporated, has a bond outstanding with a coupon rate of 5.94 percent and semiannual payments. The yield to maturity is 5.1 percent and the bond matures in 20 years. What is the market price if the bond has a par value of $1,000?

89) \_\_\_\_\_\_

A) $1,126.64   
 B) $1,103.80  
 C) $1,104.55  
 D) $1,107.71  
 E) $1,106.25

**90)** Lincoln Park Company has a bond outstanding with a coupon rate of 5.34 percent and semiannual payments. The yield to maturity is 6.7 percent and the bond matures in 18 years. What is the market price if the bond has a par value of $2,000?

90) \_\_\_\_\_\_

A) $1,752.36   
 B) $1,722.91  
 C) $1,720.37  
 D) $1,718.00  
 E) $1,720.64

**91)** Harpeth Valley Water District has a bond outstanding with a coupon rate of 3.87 percent and semiannual payments. The bond matures in 24 years, with a yield to maturity of 4.35 percent, and a par value of $5,000. What is the market price of the bond?

91) \_\_\_\_\_\_

A) $4,657.96   
 B) $4,651.84  
 C) $4,644.69  
 D) $4,646.84  
 E) $4,737.59

**92)** Kasey Corporation has a bond outstanding with a coupon rate of 5.86 percent and semiannual payments. The bond has a yield to maturity of 4.3 percent, a par value of $2,000, and matures in 24 years. What is the quoted price of the bond?

92) \_\_\_\_\_\_

A) 125.68   
 B) 2,464.22  
 C) 123.21  
 D) 2,710.64  
 E) 123.56

**93)** Footsteps Company has a bond outstanding with a coupon rate of 5.8 percent and annual payments. The bond currently sells for $939.96, matures in 16 years, and has a par value of $1,000. What is the YTM of the bond?

93) \_\_\_\_\_\_

A) 5.77%   
 B) 6.17%  
 C) 5.34%  
 D) 5.80%  
 E) 6.41%

**94)** Broke Benjamin Company has a bond outstanding that makes semiannual payments with a coupon rate of 5.3 percent. The bond sells for $948.63 and matures in 17 years. The par value is $1,000. What is the YTM of the bond?

94) \_\_\_\_\_\_

A) 4.33%   
 B) 5.20%  
 C) 5.49%  
 D) 5.78%  
 E) 2.89%

**95)** Crossfade Corporation has a bond with a par value of $2,000 that sells for $2,110.04. The bond has a coupon rate of 6.75 percent and matures in 21 years. If the bond makes semiannual coupon payments, what is the YTM of the bond?

95) \_\_\_\_\_\_

A) 4.71%   
 B) 5.65%  
 C) 6.27%  
 D) 3.14%  
 E) 5.96%

**96)** There is a bond that has a quoted price of 109.629 and a par value of $2,000. The coupon rate is 7.02 percent and the bond matures in 20 years. If the bond makes semiannual coupon payments, what is the YTM of the bond?

96) \_\_\_\_\_\_

A) 6.18%   
 B) 5.56%  
 C) 2.87%  
 D) 3.09%  
 E) 4.63%

**97)** A bond has a par value of $1,000, a current yield of 6.93 percent, and semiannual coupon payments. The bond is quoted at 101.56. What is the amount of each coupon payment?

97) \_\_\_\_\_\_

A) $70.38   
 B) $69.30  
 C) $39.59  
 D) $34.65  
 E) $35.19

**98)** A bond has a par value of $1,000, a current yield of 7.07 percent, and semiannual coupon payments. The bond is quoted at 96.49. What is the coupon rate of the bond?

98) \_\_\_\_\_\_

A) 13.64%   
 B) 14.14%  
 C) 7.07%  
 D) 7.67%  
 E) 6.82%

**99)** A 23-year, semiannual coupon bond sells for $981.73. The bond has a par value of $1,000 and a yield to maturity of 6.81 percent. What is the bond's coupon rate?

99) \_\_\_\_\_\_

A) 5.99%   
 B) 3.33%  
 C) 6.32%  
 D) 4.99%  
 E) 6.65%

**100)** AB Builders, Incorporated, has 15-year bonds outstanding with a par value of $2,000 and a quoted price of 98.572. The bonds pay interest semiannually and have a yield to maturity of 6.53 percent. What is the coupon rate?

100) \_\_\_\_\_\_

A) 6.06%   
 B) 6.38%  
 C) 9.57%  
 D) 5.74%  
 E) 12.76%

**101)** A bond that pays interest semiannually has a price of $941.35 and a semiannual coupon payment of $26.00. If the par value is $1,000, what is the current yield?

101) \_\_\_\_\_\_

A) 2.76%   
 B) 5.52%  
 C) 5.20%  
 D) 2.60%  
 E) 5.25%

**102)** Sweet Sue Foods has bonds outstanding with a coupon rate of 5.62 percent paid semiannually and sell for $1,890.64. The bonds have a par value of $2,000 and 17 years to maturity. What is the current yield for these bonds?

102) \_\_\_\_\_\_

A) 5.95%   
 B) 2.97%  
 C) 6.44%  
 D) 5.65%  
 E) 5.62%

**103)** A bond that pays interest semiannually has a coupon rate of 4.96 percent and a current yield of 5.21 percent. The par value is $1,000. What is the bond's price?

103) \_\_\_\_\_\_

A) $976.01   
 B) $936.15  
 C) $952.02  
 D) $1,031.35  
 E) $1,050.40

**104)** A bond with 16 years to maturity and a semiannual coupon rate of 5.89 percent has a current yield of 5.57 percent. The bond's par value is $2,000. What is the bond's price?

104) \_\_\_\_\_\_

A) $2,057.45   
 B) $1,891.34  
 C) $2,079.65  
 D) $2,114.90  
 E) $2,291.14

**105)** A municipal bond has a coupon rate of 6.19 percent and a YTM of 5.77 percent. If an investor has a marginal tax rate of 38 percent, what is the equivalent pretax yield on a taxable bond?

105) \_\_\_\_\_\_

A) 3.58%   
 B) 9.98%  
 C) 6.57%  
 D) 3.84%  
 E) 9.31%

**106)** A taxable bond has a coupon rate of 6.07 percent and a YTM of 5.69 percent. If an investor has a marginal tax rate of 28 percent, what is the equivalent aftertax yield?

106) \_\_\_\_\_\_

A) 6.14%   
 B) 7.90%  
 C) 4.10%  
 D) 4.37%  
 E) 8.43%

**107)** A municipal bond has a YTM of 4.23 percent while the YTM of a comparable taxable bond is 6.58 percent. What is the tax rate that will make an investor indifferent between the municipal bond and the taxable bond?

107) \_\_\_\_\_\_

A) 55.56%   
 B) 47.42%  
 C) 45.63%  
 D) 35.71%  
 E) 39.29%

**108)** Navarro, Incorporated, plans to issue new zero coupon bonds with a par value of $1,000 to fund a new project. The bonds will have a YTM of 5.19 percent and mature in 20 years. If we assume semiannual compounding, at what price will the bonds sell?

108) \_\_\_\_\_\_

A) $346.92   
 B) $344.53  
 C) $358.88  
 D) $349.91  
 E) $363.51

**109)** There are zero coupon bonds outstanding that have a YTM of 5.79 percent and mature in 22 years. The bonds have a par value of $10,000. If we assume semiannual compounding, what is the price of the bonds?

109) \_\_\_\_\_\_

A) $2,753.78   
 B) $2,734.79  
 C) $2,777.52  
 D) $2,898.80  
 E) $2,848.74

**110)** There is a zero coupon bond that sells for $425.13 and has a par value of $1,000. If the bond has 13 years to maturity, what is the yield to maturity? Assume semiannual compounding.

110) \_\_\_\_\_\_

A) 6.69%   
 B) 6.42%  
 C) 6.80%  
 D) 6.52%  
 E) 6.47%

**111)** There is a zero coupon bond that sells for $4,407.22 and has a par value of $10,000. If the bond has 21 years to maturity, what is the yield to maturity? Assume semiannual compounding.

111) \_\_\_\_\_\_

A) 3.94%   
 B) 3.98%  
 C) 3.81%  
 D) 3.84%  
 E) 3.78%

**112)** You purchase a zero coupon bond with 16 years to maturity and a yield to maturity of 5.09 percent. The bond has a par value of $1,000. What is the implicit interest for the first year? Assume semiannual compounding.

112) \_\_\_\_\_\_

A) $22.30   
 B) $22.14  
 C) $22.49  
 D) $20.18  
 E) $23.06

**113)** An investor purchases a zero coupon bond with 15 years to maturity at a price of $434.26. The bond has a par value of $1,000. What is the implicit interest for the first year? Assume semiannual compounding.

113) \_\_\_\_\_\_

A) $24.00   
 B) $25.45  
 C) $24.83  
 D) $21.73  
 E) $23.65

**114)** You purchase a bond with an invoice price of $1,057. The bond has a coupon rate of 5.75 percent, it makes semiannual payments, and there are 5 months to the next coupon payment. The par value is $1,000. What is the clean price of the bond?

114) \_\_\_\_\_\_

A) $1,033.04   
 B) $1,028.25  
 C) $1,052.21  
 D) $1,085.75  
 E) $1,061.79

**115)** The bond has a coupon rate of 5.51 percent, it makes semiannual payments, and there are 4 months to the next coupon payment. A clean price of $917 and the par value is $1,000. What is the invoice price?

115) \_\_\_\_\_\_

A) $907.82   
 B) $889.45  
 C) $898.63  
 D) $926.18  
 E) $944.55

**116)** A bond with a coupon rate of 5.28 percent and semiannual coupon payments matures in 15 years. The YTM is 6.46 percent. What is the effective annual yield?

116) \_\_\_\_\_\_

A) 6.56%   
 B) 5.35%  
 C) 6.83%  
 D) 5.28%  
 E) 6.46%

**117)** There is a bond that has a quoted price of 95.859 and a par value of $2,000. The coupon rate is 6.57 percent and the bond matures in 15 years. If the bond makes semiannual coupon payments, what is the effective annual interest rate?

117) \_\_\_\_\_\_

A) 3.51%   
 B) 3.65%  
 C) 7.02%  
 D) 6.43%  
 E) 7.14%

**118)** Setrakian Industries needs to raise $48.5 million to fund a new project. The company will sell bonds that have a coupon rate of 5.56 percent paid semiannually and that mature in 10 years. The bonds will be sold at an initial YTM of 6.13 percent and have a par value of $2,000. How many bonds must be sold to raise the necessary funds? **(Round your intermediate calculations to two decimal places and final answer to the nearest whole number.)**

118) \_\_\_\_\_\_

A) 25,317 bonds   
 B) 64,243 bonds  
 C) 24,250 bonds  
 D) 31,646 bonds  
 E) 48,500 bonds

**119)** Whipple Corporation just issued 225,000 bonds with a coupon rate of 5.69 percent paid semiannually that mature in 10 years. The bonds have a YTM of 6.13 percent and have a par value of $2,000. How much money was raised from the sale of the bonds? **(Round your intermediate calculations to two decimal places and final answer to the nearest whole dollar amount.)**

119) \_\_\_\_\_\_

A) $406.34 million   
 B) $417.94 million  
 C) $870.72 million  
 D) $435.36 million  
 E) $450.00 million

**120)** A bond with a par value of $5,000 is quoted at 102.088. What is the dollar price of the bond?

120) \_\_\_\_\_\_

A) $4,814.95   
 B) $5,055.79  
 C) $5,075.23  
 D) $5,138.43  
 E) $5,104.40

**121)** A bond with a current yield of 7.41 percent is quoted at 104.122. What is the coupon rate of the bond:?

121) \_\_\_\_\_\_

A) 8.23%   
 B) 7.33%  
 C) 7.72%  
 D) 7.20%  
 E) 7.60%

**ESSAY. Write your answer in the space provided or on a separate sheet of paper.  
122)** Define what is meant by interest rate risk. Also, assume the manager of a $100 million portfolio of corporate bonds predicts interest rates will rise in the near future. What adjustments should be made to the portfolio assuming the market has not already adjusted for this prediction?

**123)** Why do corporations issue 100-year bonds, knowing that interest rate risk is highest for very long-term bonds? How does the interest rate risk affect the issuer?

**124)** Normally, the Treasury yield curve is upward-sloping. Explain the conditions required for a downward-sloping yield curve to exist.

**125)** Explain liquidity risk, default risk, and taxability risk. How does each of these risks affect the yield of a bond?

**126)** Should investors be indifferent between two bonds which have equal market yields to maturity as long as the bonds have the same bond rating? Can you think of any real-world factors which might make a given investor prefer one of these bonds over the other?

**Answer Key**Test name: Chapter 8

1) E

2) A

3) B

4) C

5) D

6) E

7) A

8) B

9) D

10) E

11) D

12) C

13) E

14) D

15) C

16) A

17) E

18) B

19) E

20) C

21) E

22) D

23) D

24) D

25) D

26) E

27) D

28) D

29) D

30) A

31) B

32) A

33) B

34) E

35) E

36) E

37) E

38) E

39) B

40) C

41) D

42) D

43) D

44) A

45) E

46) B

47) E

48) C

Bond value = [.07($1,000)/2]{[1 − 1/(1 + .035/2)10(2)]/(.035/2)} + $1,000/(1 + .035/2)10(2)   
 Bond value = $1,293.18

49) A

Bond value = $1,000/[1 + (.096/2)]20(2)  
 Bond value = $153.30

50) D

Because the bond is selling at par, the yield to maturity will equal the coupon rate of 5 percent.

51) A

$1,108.15 = [.075($1,000)]{[1 − 1/(1 + YTM)14]/YTM} + $1,000/(1 + YTM)14  
 YTM = 6.31%

52) A

$1,046.92 = (.06/2)($1,000){[1 - 1/(1 + YTM/2)9(2)]/(YTM/2)} + $1,000/(1 + YTM/2)9(2)  
 YTM = 5.34%

53) B

Bond price = (.045/2)($1,000){[1 − 1/(1 + .065/2)10(2)]/(.065/2)} + $1,000/(1 + .065/2)10(2)  
 Bond price = $854.61

54) C

Bond price = (.055/2)($1,000){[1 − 1/(1 + .0713/2)12(2)]/(.0713/2)} + $1,000/(1 + .0713/2)12(2)  
 Bond price = $870.01

55) D

Bond price = .05($1,000)[(1 − 1/1.05629)/.0562] + $1,000/1.05629   
 Bond price = $957.12

56) A

$1,029.75 = (.08/2)($1,000){[1 − 1/(1 + .0752/2)t(2)]/(.0752/2)} + $1,000/(1 + .0752/2)*t*(2)  
 *t* = 17 semiannual periods, or 8.5 years

57) B

$988.52 = (.05/2)($1,000){[1 − 1/(1 + .0568/2)*t*(2)]/(.0568/2)} + $1,000/(1 + .0568/2)*t*(2)  
 *t* = 3.6 semiannual periods, or 1.8 years

58) A

Price = $1,000/(1 + .076/2)10(2)   
 Price = $474.30

59) B

Price = $1,000/1.11316  
 Price = $180.33

60) C

$394.47 = $1,000/(1 + .0687/2)t(2)  
 *t* = 13.77 years

61) B

Price5.5% = .05($1,000)[(1 − 1/1.05512)/.055] + $1,000/1.05512  
 Price5.5% = $956.91  
   
 Price6% = .05($1,000)[(1 − 1/1.0612)/.06] + $1,000/1.0612   
 Price6% = $916.16   
   
 %Δ in price = ($916.16 − 956.91)/$956.91  
 %Δ in price = −.0426, or − 4.26%

62) D

Both bonds are currently priced at $1,000 because the yield to maturity equals the bond's coupon rate.  
   
 PriceAndrew’s = .08($1,000)[(1 − 1/1.075)/.07] + $1,000/1.075  
 PriceAndrew’s = $1,041.00  
   
 PriceBoyega’s = .08($1,000)[(1 − 1/1.0710)/.07] + $1,000/1.0710   
 PriceBoyega’s = $1,070.24  
   
 %Δ in priceAndrew’s = ($1,041.00 − 1,000)/$1,000  
 %Δ in priceAndrew’s = .0410, or 4.10%  
   
 %Δ in priceBoyega’s = ($1,070.24 − 1,000)/$1,000  
 %Δ in priceBoyega’s = .0702, or 7.02%

63) C

$430.84 = $1,000/(1 + *r*/2)20(2)  
 *r* = .042547, or 4.2547%  
   
 Price = $1,000/(1 + .042547/2)19(2)  
 Price = $449.37  
   
 Implicit interestYear 1 = $449.37 − 430.84  
 Implicit interestYear 1 = $18.53

64) C

Number of bonds = $12,400,000/[$1,000/(1 + .065/2)25(2)]  
 Number of bonds = 61,366 bonds

65) A

Price = $1,000/(1 + .076/2)13.5(2)  
 Price = $365.32

66) E

$1,069.14 = (.45/2)($1,000){[1 − 1/(1 + YTM/2)5(2)]/(YTM/2)} + $1,000/(1 + YTM/2)5(2)  
 YTM = .0300, or 3.00%

67) A

Price = .082($1,000)[(1 − 1/1.076711.5)/.0767] + $1,000/1.076711.5  
 Price = $1,039.56  
   
 Current yield = [.082($1,000)]/$1,039.56  
 Current yield = .0789, or 7.89%

68) D

Current yield = [.045($1,000)]/$1,105.50  
 Current yield = .0407, or 4.07%

69) B

Current yield = [.04($1,000)]/$1,085.30  
 Current yield = .0369, or 3.69%

70) C

*T*\* = .0745(1 − .12)  
 *T*\* = .0656, or 6.56%

71) C

*T*\* = .0486/(1 − .24)  
 *T*\* = .0639, or 6.39%

72) D

Bond value0 = [.5($1,000)]/1.143   
 Bond value0 = $337.49

73) A

Bond value0 = {.75($1,000) + .25[.60($1,000)]}/1.153  
 Bond value0 = $591.76

74) A

Clean price = 99.486%($1,000)  
 Clean price = $994.86

75) A

Dirty price = 101.364%($1,000) + .0775($1,000)(4/12)  
 Dirty price = $1,039.47

76) A

Accrued interest = .062($1,000)(5/12)  
 Accrued interest = $25.83

77) C

Market price = 101.633%($1,000)  
 Market price = $1,016.33

78) B

Invoice price = 131.347%($5,000) + (.074/2)(4/6)($5,000)  
 Invoice price = $6,690.68

79) B

*r* = 1.0606/1.0182 − 1  
 *r* = .0416, or 4.16%

80) C

*r* = 1.0698/1.0128 − 1  
 *r =* .0563, or 5.63%

81) D

*R* = (1.0289)(1.0321) − 1  
 *R* = .0619, or 6.19%

82) A

*h* = 1.0728/1.0309 − 1  
 *h* = .0406, or 4.06%

83) A

Nominal return = [(1.034)(1.028) − 1] + .0027 + .0008 + .0169  
 Nominal return = .0834, or 8.34%

84) D

*r* = [(1 + .097)/(1 + .027)] − 1 = .0682, or 6.82%

85) A

*h* = [(1 + .101)/(1 + .078)] − 1 = .0213, or 2.13%

86) C

*R* = [(1 + .077) × (1 + .025)] − 1 = .1039, or 10.39%

87) C

1 + .0775 = (1 + *r*) × (1 + .04)  
 *r* = 1.0775/1.04 − 1 = .0361, or 3.61%

88) C

PV = $142{[1 − (1/1.08323)]/.083} + $2,000/1.08323  
 PV = $1,757.05

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Enter | 23 | | | 8.3% | | |  | | | −$142 | | | −$2,000 | | |
|  |  | **N** |  |  | **I/Y** |  |  | **PV** |  |  | **PMT** |  |  | **FV** |  |
| Solve for |  | | |  | | | $1,757.05 | | |  | | |  | | |

89) C

PV = $29.70{[1 − (1/1.025540)]/.0255} + $1,000/1.025540  
 PV = $1,104.55

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Enter | 40 | | | 5.1/2% | | |  | | | −$29.70 | | | −$1,000 | | |
|  |  | **N** |  |  | **I/Y** |  |  | **PV** |  |  | **PMT** |  |  | **FV** |  |
| Solve for |  | | |  | | | $1,104.55 | | |  | | |  | | |

90) D

PV = $53.40{[1 − (1/1.033536)]/.0335} + $2,000/1.033536  
 PV = $1,718.00

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Enter | 36 | | | 6.7/2% | | |  | | | −$53.40 | | | −$2,000 | | |
|  |  | **N** |  |  | **I/Y** |  |  | **PV** |  |  | **PMT** |  |  | **FV** |  |
| Solve for |  | | |  | | | $1,718.00 | | |  | | |  | | |

91) C

PV = $96.75{[1 − (1/1.0217548)]/.02175} + $5,000/1.0217548  
 PV = $4,644.69

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Enter | 48 | | | 4.35/2% | | |  | | | −$96.75 | | | −$5,000 | | |
|  |  | **N** |  |  | **I/Y** |  |  | **PV** |  |  | **PMT** |  |  | **FV** |  |
| Solve for |  | | |  | | | $4,644.69 | | |  | | |  | | |

92) C

PV = $58.60{[1 − (1/1.021548)]/.0215} + $2,000/1.021548  
 PV = $2,464.22  
   
 Quoted price = $2,464.22/$2,000 × 100 = 123.21

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Enter | 24 × 2 | | | 4.3%/2 | | |  | | | −$58.60 | | | −$2,000 | | |
|  |  | **N** |  |  | **I/Y** |  |  | **PV** |  |  | **PMT** |  |  | **FV** |  |
| Solve for |  | | |  | | | $2,464.22 | | |  | | |  | | |

93) E

$939.96 = $58{[1 − 1/(1 + YTM)16]/YTM} + $1,000/(1 + YTM)16  
 YTM = .0641, or 6.41%

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Enter | 16 | | |  | | | −$939.96 | | | $58 | | | $1,000 | | |
|  |  | **N** |  |  | **I/Y** |  |  | **PV** |  |  | **PMT** |  |  | **FV** |  |
| Solve for |  | | | 6.41% | | |  | | |  | | |  | | |

94) D

$948.63 = $26.50{[1 − 1/(1 + *r*)34]/*r*} + $1,000/(1 + *r*)34  
 *r* = .0289, or 2.89%  
   
 YTM = 2.89% × 2 = 5.78%

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Enter | 17 × 2 | | |  | | | −$948.63 | | | $26.50 | | | $1,000 | | |
|  |  | **N** |  |  | **I/Y** |  |  | **PV** |  |  | **PMT** |  |  | **FV** |  |
| Solve for |  | | | 2.89% | | |  | | |  | | |  | | |

95) C

$2,110.04 = $67.50{[1 − 1/(1 + *r*)42]/*r*} + $2,000/(1 + *r*)42  
 *r* = .0314, or 3.14%  
   
 YTM = 3.14% × 2 = 6.27%

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Enter | 21 × 2 | | |  | | | −$2,110.04 | | | $67.50 | | | $2,000 | | |
|  |  | **N** |  |  | **I/Y** |  |  | **PV** |  |  | **PMT** |  |  | **FV** |  |
| Solve for |  | | | 3.14% | | |  | | |  | | |  | | |

96) A

$2,192.58 = $70.20{[1 − 1/(1 + *r*)40]/*r*} + $2,000/(1 + *r*)40  
 *r* = .0309, or 3.09%  
   
 YTM = 3.09% × 2 = 6.18%

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| Enter | 20 × 2 | | |  | | | −$2,192.58 | | | $70.20 | | | $2,000 | | |
|  |  | **N** |  |  | **I/Y** |  |  | **PV** |  |  | **PMT** |  |  | **FV** |  |
| Solve for |  | | | 3.09% | | |  | | |  | | |  | | |

97) E

Coupon payment = [.0693 × (1.0156 × $1,000)/2] = $35.19

98) E

Coupon payment = [.0707 × (.9649 × $1,000)/2] = $34.11  
   
 Coupon rate = ($34.11 × 2)/$1,000 = .0682, or 6.82%

99) E

$981.73 = *C*{[1 − 1/(1 + .0681/2)46]/(.0681/2)} + $1,000/(1 + .0681/2)46  
 *C* = $33.26  
   
 Coupon rate = ($33.26 × 2)/$1,000 = .0665, or 6.65%

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Enter | 23 × 2 | | | 6.81%/2 | | | −$981.73 | | |  | | | $1,000 | | |
|  |  | **N** |  |  | **I/Y** |  |  | **PV** |  |  | **PMT** |  |  | **FV** |  |
| Solve for |  | | |  | | |  | | | $33.26 | | |  | | |

100) B

$1,971.44 = *C*{[1 − 1/(1 + .0653/2)30]/(.0653/2)} + $2,000/(1 + .0653/2)30  
 *C* = $63.79  
   
 Coupon rate = ($63.79 × 2)/$2,000 = .0638, or 6.38%

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| Enter | 15 × 2 | | | 6.53%/2 | | | −$1,971.44 | | |  | | | $2,000 | | |
|  |  | **N** |  |  | **I/Y** |  |  | **PV** |  |  | **PMT** |  |  | **FV** |  |
| Solve for |  | | |  | | |  | | | $63.79 | | |  | | |

101) B

Current yield = ($26.00 × 2)/$941.35 = .0552, or 5.52%

102) A

Current yield = (.0562 × $2,000)/$1,890.64 = .0595, or 5.95%

103) C

Coupon payment = .0496 × $1,000 = $49.60  
   
 Price = $49.60/.0521 = $952.02

104) D

Coupon payment = .0589 × $2,000 = $117.80  
   
 Price = $117.80/.0557 = $2,114.90

105) E

Pretax yield = 5.77%/(1 − .38) = 9.31%

106) C

Aftertax yield = 5.69% × (1 − .28) = 4.10%

107) D

Critical tax rate = 1 − .0423/.0658 = .3571, or 35.71%

108) C

PV = $1,000/(1 + .0519/2)40  
 PV = $358.88

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| Enter | 40 | | | 5.19/2% | | |  | | |  | | | −$1,000 | | |
|  |  | **N** |  |  | **I/Y** |  |  | **PV** |  |  | **PMT** |  |  | **FV** |  |
| Solve for |  | | |  | | | $358.88 | | |  | | |  | | |

109) E

PV = $10,000/(1 + .0579/2)44  
 PV = $2,848.74

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Enter | 44 | | | 5.79%/2 | | |  | | |  | | | −$10,000 | | |
|  |  | **N** |  |  | **I/Y** |  |  | **PV** |  |  | **PMT** |  |  | **FV** |  |
| Solve for |  | | |  | | | $2,848.74 | | |  | | |  | | |

110) A

$425.00 = $1,000/(1 + *r*)26  
 *r* = .0334, or 3.34%  
   
 YTM = 3.34% × 2 = 6.69%

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| Enter | 26 | | |  | | | −$425.13 | | |  | | | $1,000 | | |
|  |  | **N** |  |  | **I/Y** |  |  | **PV** |  |  | **PMT** |  |  | **FV** |  |
| Solve for |  | | | 3.34% | | |  | | |  | | |  | | |

111) A

$4,407.00 = $10,000/(1 + *r*)42  
 *r*= .0197, or 1.97%  
   
 YTM = 1.97% × 2 = 3.94%

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Enter | 42 | | |  | | | −$4,407.22 | | |  | | | $10,000 | | |
|  |  | **N** |  |  | **I/Y** |  |  | **PV** |  |  | **PMT** |  |  | **FV** |  |
| Solve for |  | | | 1.97% | | |  | | |  | | |  | | |

112) E

PV = $1,000/(1 + .0509/2)32 = $447.44  
   
 PV = $1,000/(1 + .0509/2)30 = $470.51  
   
 Implicit interest = $470.51 − 447.44 = $23.06

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Enter | 32 | | | 5.09%/2 | | |  | | |  | | | −$1,000 | | |
|  |  | **N** |  |  | **I/Y** |  |  | **PV** |  |  | **PMT** |  |  | **FV** |  |
| Solve for |  | | |  | | | $447.44 | | |  | | |  | | |

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Enter | 30 | | | 5.09%/2 | | |  | | |  | | | −$1,000 | | |
|  |  | **N** |  |  | **I/Y** |  |  | **PV** |  |  | **PMT** |  |  | **FV** |  |
| Solve for |  | | |  | | | $470.51 | | |  | | |  | | |

113) C

$434.26 = $1,000/(1 + *r*)30  
 *r* = .0282, or 2.82%  
   
 YTM = 2.82% × 2 = 5.64%  
   
 PV = $1,000/(1 + .0282)28 = $459.09  
   
 Implicit interest = $459.09 − 434.26 = $24.83

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Enter | 30 | | |  | | | $434.26 | | |  | | | −$1,000 | | |
|  |  | **N** |  |  | **I/Y** |  |  | **PV** |  |  | **PMT** |  |  | **FV** |  |
| Solve for |  | | | 2.82% | | |  | | |  | | |  | | |

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Enter | 28 | | | 5.64%/2 | | |  | | |  | | | −$1,000 | | |
|  |  | **N** |  |  | **I/Y** |  |  | **PV** |  |  | **PMT** |  |  | **FV** |  |
| Solve for |  | | |  | | | $459.09 | | |  | | |  | | |

114) C

Coupon payment = .0575($1,000)/2 = $28.75  
   
 Accrued interest = $28.75[(6 − 5)/6] = $4.79  
   
 Clean price = $1,057 − 4.79 = $1,052.21

115) D

Coupon payment = .0551($1,000)/2 = $27.55  
   
 Accrued interest = $27.55[(6 − 4)/6] = $9.18  
   
 Invoice price = $917 + 9.18 = $926.18

116) A

Effective rate = (1 + .0646/2)2 − 1 = 6.56%

117) E

$1,917.18 = $65.70{[1 − 1/(1 + *r*)30]/*r*} + $2,000/(1 + *r*)30  
 *r* = .0351, or 3.51%  
   
 Effective annual rate = (1 + .0351)2 − 1 = .0714, or 7.14%

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| Enter | 15 × 2 | | |  | | | −$1,917.18 | | | $65.70 | | | $2,000 | | |
|  |  | **N** |  |  | **I/Y** |  |  | **PV** |  |  | **PMT** |  |  | **FV** |  |
| Solve for |  | | | 3.51% | | |  | | |  | | |  | | |

118) A

PV = $55.60{1 − [1/(1 + .0613/2)20]}/(.0613/2) + $2,000/(1 + .0613/2)20  
 PV = $1,915.71  
   
 Bonds to sell = $48,500,000/$1,915.71 = 25,317

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Enter | 10 × 2 | | | 6.13%/2 | | |  | | | −$55.60 | | | −$2,000 | | |
|  |  | **N** |  |  | **I/Y** |  |  | **PV** |  |  | **PMT** |  |  | **FV** |  |
| Solve for |  | | |  | | | $1,915.71 | | |  | | |  | | |

119) D

PV = $56.90{1 − [1/(1 + .0613/2)20]}/{.0613/2} + $2,000/(1 + .0613/2)20  
 PV = $1,934.93  
   
 Amount raised = $1,934.93 × 225,000 = $435,359,250

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Enter | 10 × 2 | | | 6.13%/2 | | |  | | | −$56.90 | | | −$2,000 | | |
|  |  | **N** |  |  | **I/Y** |  |  | **PV** |  |  | **PMT** |  |  | **FV** |  |
| Solve for |  | | |  | | | $1,934.93 | | |  | | |  | | |

120) E

Price = 102.088/100 × $5,000 = $5,104.40

121) C

Annual coupon = .0741 × ($104.122 × 10) = $77.15  
   
 Coupon rate = $77.15/$1,000 = .0772, or 7.72%  
   
 Note: The par value is irrelevant.

122) Interest rates and bond prices have an inverse relationship. It is this effect on bond prices caused by changes in market interest rates that is referred to as interest rate risk. All else the same, if interest rates are expected to rise, bond prices should be expected to decline. Since short-term, high-coupon bonds are less sensitive to interest rate risk, the portfolio should be moved into these types of securities to limit the downside risk.

123) Essentially, the issuer takes the opposite side of the interest rate risk position. By issuing long-term bonds, the corporation is essentially betting that rates won’t fall significantly. If rates do decline, the corporation will incur a loss due to borrowing at rates higher than the future market rates. On the other hand, if rates rise, the corporation benefits by having locked in its borrowing rate for up to 100 years. In addition, these bonds are a source of long-term financing where the interest is tax deductible. If the firm should issue stocks, the dividends would not be tax deductible.

124) A downward-sloping yield curve exists when the expected inflation premium is declining over time. The decline in the inflation premium must be significant enough to overcome the interest rate risk premium, which increases with time.

125) Liquidity problems exist in thinly traded bonds making some bonds difficult to sell at their actual value. The greater this difficulty, the higher the liquidity risk, and the higher the premium demanded. Default risk is the likelihood the issuer will default on its bond obligations. The higher this probability, the higher the default risk, and the higher the premium demanded. Taxability risk reflects the fact that some bonds have their interest taxed at the federal, state, and local levels, while others are taxed by only some, or none, of these governmental levels. The more taxes that are applied to a bond’s interest payments, the higher the premium demanded.

126) The question only states the bonds have the same market yield to maturity and bond rating. The market yield is comprised of several factors which may be valued differently by different investors. One key difference is the taxability premium that each investor applies to a bond. Since investors face different tax situations and tax rates, this premium can vary. Also, an investor who plans on holding a bond until maturity will not place as much emphasis on the liquidity premium as will an investor who plans to sell prior to maturity. Individual investors may also differ in their outlook for inflation, causing each to assign a different inflation premium to the same bond. Likewise, individual investors may have differing opinions on a bond’s rating as they may view the probability of default differently. Any one of these differences may cause an investor to assign a discount rate to the bond that varies from that assigned by the overall market. This can cause investors to have differing preferences on which bonds they prefer as each bond’s value depends on the discount rate used to value the bond’s cash flows.