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

**MULTIPLE CHOICE - Choose the one alternative that best completes the statement or answers the question.  
1)** A 4 percent Treasury bond has 2.5 years to maturity. Spot rates are as follows:

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **6 month** | **1 year** | **1.5 years** | **2 years** | **2.5 years** |
| 2% | 2.5% | 3% | 4% | 6% |

The note is currently selling for $976. Determine the arbitrage profit, if any, that is possible.

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

A) $37.63.   
 B) $43.22.  
 C) $19.22.

**2)** An investor holds $100,000 (par value) worth of TIPS currently trading at par. The coupon rate of 4% is paid semiannually, and the annual inflation rate is 2.5%. What coupon payment will the investor receive at the end of the first six months?

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

A) $2,000.   
 B) $2,025.  
 C) $2,050.

**3)** Venenata Foods has a 10-year bond outstanding with an annual coupon of 6.5%. If the bond is currently priced at $1,089.25, which of the following is *closest* to the semiannual-bond basis yield?

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

A) 5.42%.   
 B) 5.33%.  
 C) 5.26%.

**4)** A yield curve for coupon bonds is composed of yields on bonds with similar:

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

A) coupon rates.   
 B) issuers.  
 C) maturities.

**5)** In a commercial mortgage-backed security (CMBS), which of the following is an example of CMBS- level call protection?

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

A) Yield maintenance charges.   
 B) Prepayment lockout.  
 C) Residual tranche.

**6)** Which of the following statements about floating-rate notes is *most accurate*?

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

A) Inverse floating-rate notes are attractive to investors who expect interest rates to rise, while floating-rate notes are attractive to investors who expect interest rates to fall.   
 B) The coupon payment on a floating-rate note at each reset date is typically based on LIBOR as of that date.  
 C) Floating-rate notes have built-in floors, while inverse floating-rate notes have built-in caps.

**7)** The interest rate on excess reserves borrowed by one bank from another bank is *most accurately* described as a(n):

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

A) reserve swap rate.   
 B) interbank lending rate.  
 C) central bank funds rate.

**8)** The reference rate for a floating-rate note should *least likely* match the note’s:

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

A) reset frequency.   
 B) maturity.  
 C) currency.

**9)** A covenant that requires the issuer not to let the insurance coverage lapse on assets pledged as collateral is an example of a(n):

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

A) negative covenant.   
 B) affirmative covenant.  
 C) inhibiting covenant.

**10)** Which of the following statements about U.S. Treasury Inflation Protection Securities (TIPS) is *most* accurate?

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

A) The inflation-adjusted principal value cannot be less than par.   
 B) Adjustments to principal values are made annually.  
 C) The coupon rate is fixed for the life of the issue.

**11)** A bond’s indenture *least likely* specifies the:

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

A) source of funds for repayment.   
 B) covenants that apply to the issuer.  
 C) identity of the lender.

**12)** Allcans, an aluminum producer, needs to issue some debt to finance expansion plans, but wants to hedge its bond interest payments against fluctuations in aluminum prices. Jerrod Price, the company’s investment banker, suggests a commodity index floater. This type of bond is *least likely* to provide which of the following advantages?

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

A) Payment structure helps protect Allcan's credit rating.   
 B) The bond's coupon rate is linked to the price of aluminum.  
 C) Allows Allcans to set coupon payments based on business results.

**13)** Suppose that the six-month spot rate is equal to 7% and the two-year spot rate is 6%. The one-and a half-year forward rate starting six months from now has to:

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

A) be more than 6%.   
 B) be less than 6%.  
 C) lie between 6% and 7%.

**14)** A $1,000 par, semiannual-pay bond is trading for 89.14, has a coupon rate of 8.75%, and accrued interest of $43.72. The flat price of the bond is:

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

A) $935.12.   
 B) $891.40.  
 C) $847.69.

**15)** A five-year bond with a 7.75% semiannual coupon currently trades at 101.245% of a par value of $1,000. Which of the following is *closest* to the current yield on the bond?

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

A) 7.75%.   
 B) 7.65%.  
 C) 7.53%.

**16)** A waterfall structure is *least likely* describe:

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

A) credit card ABS.   
 B) auto loan ABS.  
 C) agency RMBS.

**17)** Bond X is a noncallable corporate bond maturing in ten years. Bond Y is also a corporate bond maturing in ten years, but Bond Y is callable at any time beginning three years from now. Both bonds carry a credit rating of AA. Based on this information:

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

A) The zero-volatility spread of Bond X will be greater than its option-adjusted spread.   
 B) Bond Y will have a higher zero-volatility spread than Bond X.  
 C) The option adjusted spread of Bond Y will be greater than its zero-volatility spread.

**18)** A renegotiable mortgage has a fixed interest rate that:

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

A) the borrower may change to a variable rate.   
 B) changes to a different fixed rate during its life.  
 C) changes to a variable rate during its life.

**19)** Which of the following statements concerning the support tranche in a planned amortization class (PAC) CMO backed by agency RMBS is *least accurate*?

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

A) If prepayments are too low to maintain the scheduled PAC payments, the shortfall is provided by the support tranche.   
 B) The purpose of a support tranche is to provide prepayment protection for one or more PAC tranches.  
 C) The support tranches are exposed to high levels of credit risk.

**20)** A repurchase agreement is described as a “reverse repo” if:

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

A) the repurchase price is lower than the sale price.   
 B) a bond dealer is the lender.  
 C) collateral is delivered to the lender and returned to the borrower.

**21)** The one-year spot rate is 7.00%. One-year forward rates are 8.15% one year from today, 10.30% two years from today, and 12.00% three years from today.  
   
 The value of a 4-year, 11% annual pay, $1,000 per bond is *closest* to:

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

A) $1,052.   
 B) $1,060.  
 C) $984.

**22)** One of the primary benefits of securitization is that it:

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

A) removes problem assets from the issuing firm’s balance sheet.   
 B) improves the collectability of the loans that are securitized.  
 C) improves the legal claims of the security holders to the loans that are securitized.

**23)** If yield to maturity and risk factors remain constant over the remainder of a coupon bond's life, and the bond is trading at a discount today, it will have a:

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

A) positive current yield and a capital gain.   
 B) positive current yield, only.  
 C) negative current yield and a capital gain.

**24)** Which of the following embedded bond options tends to benefit the borrower?

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

A) Put option.   
 B) Conversion option.  
 C) Interest rate cap.

**25)** A 10-year spot rate is *least likely* the:

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

A) yield-to-maturity on a 10-year zero-coupon bond.   
 B) yield-to-maturity on a 10-year coupon bond.  
 C) appropriate discount rate on the year 10 cash flow for a 20-year bond.

**26)** Austin Traynor is considering buying a $1,000 face value, semi-annual coupon bond with a quoted price of 104.75 and accrued interest since the last coupon of $33.50. Ignoring transaction costs, how much will the seller receive at the settlement date?

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

A) $1,081.00.   
 B) $1,014.00.  
 C) $1,047.50.

**27)** With respect to auto-loan backed ABS:

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

A) the underlying loans are collateralized so no credit enhancement is necessary.   
 B) all of them have some sort of credit enhancement.  
 C) some of them have some sort of credit enhancement.

**28)** If a callable bond has an option-adjusted spread (OAS) of 75 basis points, this *most likely* suggests:

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

A) the bond has a zero-volatility spread greater than 75 basis points.   
 B) the 75 basis points represent the investor’s compensation for credit risk, liquidity risk, and volatility risk.  
 C) the implied cost of the call option is the bond’s nominal spread minus 75 basis points.

**29)** An investor most concerned with reinvestment risk would be *least likely* to:

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

A) prefer a noncallable bond to a callable bond.   
 B) eliminate reinvestment risk by holding a coupon bond until maturity.  
 C) prefer a lower coupon bond to a higher coupon bond.

**30)** If the yield curve is downward-sloping, the no-arbitrage value of a bond calculated using spot rates will be:

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

A) greater than the market price of the bond.   
 B) equal to the market price of the bond.  
 C) less than the market price of the bond.

**31)** Medium-term notes (MTNs) *most likely*:

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

A) have maturities between 2 and 10 years.   
 B) are sold through an underwritten offering.  
 C) have less liquidity than long-term bonds of the same issuer.

**32)** The bonds of Grinder Corporation trade at a G-spread of 150 basis points above comparable maturity U.S. Treasury securities. The option adjusted spread (OAS) on the Grinder bonds is 75 basis points. Using this information, and assuming that the Treasury yield curve is flat:

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

A) the zero-volatility spread is 225 basis points.   
 B) the option cost is 75 basis points.  
 C) the zero-volatility spread is 75 basis points.

**33)** An annual-pay, 4% coupon, 10-year bond has a yield to maturity of 5.2%. If the price of this bond is unchanged two years later, its yield to maturity at that time is:

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

A) greater than 5.2%.   
 B) 5.2%.  
 C) less than 5.2%.

**34)** A five-year corporate bond and its benchmark government bond had the following yields over a one- month period:

|  |  |  |
| --- | --- | --- |
|  | **Beginning of Month** | **End of Month** |
| **Corporate bond yield** | 6.75% | 7.00% |
| **Government bond yield** | 4.25% | 4.75% |

Over this month, the price of the corporate bond *most likely* experienced:

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

A) unfavorable macroeconomic factors and favorable microeconomic factors.   
 B) unfavorable macroeconomic and microeconomic factors.  
 C) favorable macroeconomic factors and unfavorable microeconomic factors.

**35)** Which of the following is *least likely* an advantage of estimating the duration of a bond portfolio as a weighted average of the durations of the bonds in the portfolio?

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

A) It is easier to calculate than the alternative.   
 B) It can be used when the portfolio contains bonds with embedded options.  
 C) It is theoretically more sound than the alternative.

**36)** An investor buys a bond that has a Macaulay duration of 3.0 and a yield to maturity of 4.5%. The investor plans to sell the bond after three years. If the yield curve has a parallel downward shift of 100 basis points immediately after the investor buys the bond, her annualized horizon return is *most likely* to be:

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

A) less than 4.5%.   
 B) greater than 4.5%.  
 C) approximately 4.5%.

**37)** The factors that must be considered when estimating the credit risk of a bond include:

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

A) the bond rating, the recovery rate, and the yield volatility.   
 B) only the bond rating and the recovery rate.  
 C) only the bond rating.

**38)** Which of the following will be the greatest for a putable bond at relatively high yields?

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

A) Modified duration of the bond ignoring the option.   
 B) Macaulay duration of the bond ignoring the option.  
 C) Effective duration of the bond.

**39)** The factors that must be considered when estimating the credit risk of a bond include:

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

A) the bond rating, the recovery rate, and the yield volatility.   
 B) only the bond rating and the recovery rate.  
 C) only the bond rating.

**40)** Which of the following will be the greatest for a putable bond at relatively high yields?

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

A) Modified duration of the bond ignoring the option.   
 B) Macaulay duration of the bond ignoring the option.  
 C) Effective duration of the bond.

**41)** Jane Walker has set a 7% yield as the goal for the bond portion of her portfolio. To achieve this goal, she has purchased a 7%, 15-year corporate bond at a discount price of 93.50. What amount of reinvestment income will she need to earn over this 15-year period to achieve a compound return of 7% on a semiannual basis?

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

A) $624.   
 B) $574.  
 C) $459.

**42)** An investor purchases a fixed coupon bond with a Macaulay duration of 5.3. The bond’s yield to maturity decreases before the first coupon payment. If the YTM then remains constant and the investor sells the bond after three years, the realized yield will be:

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

A) lower than the YTM at the date of purchase.   
 B) equal to the YTM at the date of purchase.  
 C) higher than the YTM at the date of purchase.

**43)** Steven Company has EBITDA/interest and debt-to-capital ratios that are both higher compared to Joseph Company to a degree consistent with one level of issuer credit rating. Based only on this information, the credit rating of Steven is *most likely* to be:

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

A) the same as Joseph.   
 B) lower than Joseph.  
 C) higher than Joseph.

**44)** All else being equal, which of the following bond characteristics will lead to *lower* levels of coupon reinvestment risk for bonds that are held to maturity?

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

A) Shorter maturities and higher coupon levels.   
 B) Longer maturities and higher coupon levels.  
 C) Shorter maturities and lower coupon levels.

**45)** In comparing the price volatility of putable bonds to that of option-free bonds, a putable bond will have:

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

A) more price volatility at higher yields.   
 B) less price volatility at higher yields.  
 C) less price volatility at low yields.

**46)** When using duration and convexity to estimate the effect on a bond’s value of changes in its credit spread, an analyst should *most appropriately* use:

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

A) the same method used when estimating the effect of changes in yield.   
 B) Macaulay duration rather than modified duration.  
 C) a convexity measure that has been adjusted for the bond’s credit risk.

**47)** Structural subordination means that a parent company’s debt:

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

A) ranks pari passu with a subsidiary’s debt with respect to the subsidiary’s cash flows.   
 B) has a higher priority of claims to a subsidiary’s cash flows than the subsidiary’s debt.  
 C) has a lower priority of claims to a subsidiary’s cash flows than the subsidiary’s debt.

**48)** Duration and convexity are *most likely* to produce more accurate estimates of interest rate risk when the term structure of yield volatility is:

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

A) downward sloping.   
 B) upward sloping.  
 C) flat.

**49)** Holding other factors constant, the interest rate risk of a coupon bond is higher when the bond's:

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

A) yield to maturity is lower.   
 B) coupon rate is higher.  
 C) current yield is higher.

**50)** If the term structure of yield volatility slopes upward:

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

A) short-term interest rates are less than long-term interest rates.   
 B) long-term interest rates are more variable than short-term interest rates.  
 C) forward interest rates are higher than spot interest rates.

**51)** An investment advisor states, “An investor’s annualized holding period return from investing in a bond consists of three parts: the coupon interest payments, the return of principal, and any capital gain or loss that the investor realizes on the bond.” The advisor is:

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

A) incorrect, because these are not the only sources of return from investing in a bond.   
 B) incorrect, because an investor who holds a bond to maturity will not realize a capital gain or loss.  
 C) correct.

**52)** All else equal, which of the following is *least likely* to increase the interest rate risk of a bond?

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

A) A longer maturity.   
 B) A decrease in the YTM.  
 C) Inclusion of a call feature.

**Answer Key**Test name: Fixed Income

1) C

The no-arbitrage price of a bond is determined by discounting each of its cash flows at the appropriate spot rate. Any difference between the no-arbitrage price and the market price of a bond represents a potential arbitrage profit.  
formula3.mml  
 = 19.80 + 19.51 + 19.13 + 18.48 + 879.86 = $956.78  
 976 − 956.78 = $19.22

2) B

This coupon payment is computed as follows:  
formula1.mml

3) C

First, find the annual yield to maturity of the bond as: FV = $1,000; PMT = $65; N = 10; PV = −1,089.25; CPT → I/Y = 5.33%. Then, find the semiannual-bond basis yield as: 2 × [(1 + 0.0533)0.5 − 1] = 0.0526 = 5.26%.

4) B

Yield curves are typically constructed for bonds of the same or similar issuers, such as a government bond yield curve or AA rated corporate bond yield curve.

5) C

Call protection in the context of a CMBS refers to protection against prepayment risk. Structuring a CMBS with a residual (equity or first-loss) tranche provides investors in the senior tranches with CMBS- level call protection. Prepayment lockout periods and yield maintenance charges are examples of loan- level call protection because they apply to the individual loans.

6) C

The lowest possible reference rate is zero. If this occurs, the coupon on a floating-rate note cannot go lower than its quoted margin. Hence, the quoted margin is a floor coupon for a floating-rate note. The coupon on an inverse floater is determined by a formula such as “15% − 1.5 × reference rate.” If the reference rate goes to zero, the coupon on this inverse floater can go no higher than 15%.

7) C

Required reserves are deposits with a country’s central bank. Banks that deposit more than the required amount with the central bank are said to have excess reserves and may lend these to other banks. This lending is said to take place in the central bank funds market and the interest rates on such loans are known as central bank funds rates.

8) B

An appropriate reference rate for a floating-rate note should match its currency and the frequency with which its coupon rate is reset, such as 90-day yen Libor for a yen-denominated note that resets quarterly.

9) B

Covenants are classified as negative or affirmative. Affirmative covenants specify administrative actions a bond issuer is required to take, such as maintaining insurance coverage on assets pledged as collateral. Negative covenants are restrictions on a bond issuer’s actions, such as preventing an issuer from selling any assets that have been pledged as collateral or pledging them again as collateral for additional debt.

10) C

The coupon rate is set at a fixed rate determined via auction. This is called the real rate. The principal that serves as the basis of the coupon payment and the maturity value is adjusted semiannually.  
 Because of the possibility of deflation, the adjusted principal value may be less than par (however, at maturity the Treasury redeems the bonds at the greater of the inflation-adjusted principal and the initial par value).

11) C

The identity of the lender (i.e., the bondholder) is not specified in a bond’s indenture because a bond may be traded during its life. An indenture or trust deed is a legal contract that specifies a bond issuer’s obligations and restrictions. The indenture may include covenants that require the issuer to take or refrain from taking certain actions and may specify the source of funds for repayment, such as a project to be funded or the taxing power of a government.

12) C

The coupon rate is set in the bond agreement (indenture) and cannot be changed unilaterally. Non- interest rate indexed floaters are indexed to a commodity price such as oil or aluminum. Business results could be impacted by numerous factors other than aluminum prices.   
   
 Both of the other choices are true. By linking the coupon payments directly to the price of aluminum (meaning that when aluminum prices increase, the coupon rate increases and vice versa), the non- interest index floater allows Allcans to protect its credit rating during adverse circumstances.

13) B

The following relationship has to hold:  
   
 (1 + spot rate0,0.5/2)1 × (1 + forward rate0.5,2/2)3 = (1 + spot rate0,2/2)4.  
   
 For this relationship to hold the forward rate has to be less than 6%.

14) B

The flat price of the bond is the quoted price, 89.14% of par value, which is $891.40.

15) B

The current yield is computed as: (Annual Cash Coupon Payment) / (Current Bond Price). The annual coupon is: ($1,000)(0.0775) = $77.50. The current yield is then: ($77.50) / ($1,012.45) = 0.0765 = 7.65%.

16) C

A waterfall structure, where principal losses are allocated first to the lowest priority securities issued, would most likely describe auto loan ABS or credit card ABS, which often have a senior-subordinated structure. Agency RMBS are pass-through securities and do not have a senior-subordinated structure.

17) B

Bond Y will have the higher Z-spread due to the call option embedded in the bond. This option benefits the issuer, and investors will demand a higher yield to compensate for this feature. The option-adjusted spread removes the value of the option from the spread calculation, and would always be less than the Z-spread for a callable bond. Since Bond X is noncallable, the Z-spread and the OAS will be the same.

18) B

A *renegotiable* or *rollover* mortgage has an initial fixed-rate period after which the interest rate changes to another fixed rate. A *hybrid* mortgage has an initial fixed-rate period after which the interest rate changes to a variable rate. A *convertible* mortgage may be changed from fixed-rate to variable-rate or from variable-rate to fixed-rate at the borrower’s option.

19) C

The support tranches are exposed to high levels of prepayment risk, not credit risk.

20) B

Bond dealers frequently use repurchase agreements as sources of funding. When a bond dealer enters a repo as the lender instead of the borrower, the agreement is referred to as a reverse repo.

21) B

Spot Rates:   
   
 Year 1 = 7%.   
 Year 2 = [(1.07)(1.0815)]1/2 − 1 = 7.57%.   
 Year 3 = [(1.07)(1.0815)(1.103)]1/3 − 1 = 8.48%.   
 Year 4 = [(1.07)(1.0815)(1.103)(1.120)]1/4 − 1 = 9.35%.   
   
 Bond Value:   
   
 N = 1; FV = 110; I/Y = 7; CPT → PV = 102.80 N = 2; FV = 110; I/Y = 7.57; CPT → PV = 95.06   
 N = 3; FV = 110; I/Y = 8.48; CPT → PV = 86.17   
 N = 4; FV = 1,110; I/Y = 9.35; CPT → PV = 776.33 102.80 + 95.06 + 86.17 + 776.33 = 1,060.36

22) C

Securitization reduces the cost of funding the assets. One way that is accomplished is through the transfer of the underlying financial assets to a special purpose entity so that securities holders have clear legal claim to them, something they may not have if they were to invest only in the securities of the securitizer, such as a bank. Securitization does not have improved collectability as a primary benefit. Problem loans are not good candidates for securitization because institutional investors require a minimum credit quality and even well performing loans can require internal or external credit enhancement for the securitized assets.

23) B

A coupon bond will have a positive current yield. It will not have a capital gain because its price will increase toward par along its constant-yield price trajectory as long as its YTM remains constant.

24) C

The interest rate cap benefits the borrower who issues a floating rate bond. The cap places a restriction on how high the coupon rate can become during a rising interest rate environment. Therefore, the floating rate borrower is protected against ever-rising interest rates.

25) B

A 10-year spot rate is the yield-to-maturity on a 10-year zero-coupon security, and is the appropriate discount rate for the year 10 cash flow for a 20-year (or any maturity greater than or equal to 10 years) bond. Spot rates are used to value bonds and to ensure that bond prices eliminate any possibility for arbitrage resulting from buying a coupon security, stripping it of its coupons and principal payment, and reselling the strips as separate zero-coupon securities. The yield to maturity on a 10-year bond is the (complex) average of the spot rates for all its cash flows.

26) A

The full price is equal to the flat or clean price plus interest accrued from the last coupon date. Here, the flat price is 1,000 × 104.75%, or 1,000 × 1.0475 = 1,047.50. Thus, the full price = 1,047.50 + 33.50 = 1,081.00.

27) B

All automobile loan ABS have some sort of credit enhancement to make them attractive to institutional investors.

28) A

For a bond with an embedded call option, the OAS is less than its zero-volatility spread by the option cost. Therefore, the zero-volatility spread is greater than the OAS for callable bonds. If the embedded call option has any value to the issuer, a callable bond with an OAS of 75 basis points will have a *Z*- spread that is greater than 75 basis points.  
 Because the OAS represents the bond’s spread to the spot yield curve excluding the effect of the embedded option, it does not include any compensation for the volatility risk related to the option. The implied cost of an embedded option is the difference between the bond’s zero-volatility spread (not the nominal spread) and its OAS.

29) B

The key term here is *coupon bond*. While an investor in a fixed-coupon bond can usually eliminate interest rate risk by holding a bond until maturity, the same is not true for reinvestment risk. The receipt of periodic coupon payments exposes the investor to reinvestment risk. A noncallable bond reduces reinvestment risk by reducing the risk of repayment. Thus, an investor most concerned with reinvestment risk would prefer a noncallable bond to a callable bond. Since lower coupon bonds have lower reinvestment risk, this same investor would prefer a lower coupon bond to a higher coupon bond.  
 (Study Session 14, Module 42.2, LOS 42.f, Study Session 15, Module 46.1, LOS 46.a)

30) B

The value of a bond calculated using appropriate spot rates is its no-arbitrage value. If no arbitrage opportunities are present, this value is equal to the market price of a bond.

31) C

As they are most often custom debt instruments, medium-term notes typically have less liquidity than a regular bond issue from the same issuer. Medium-term notes can have any maturity and are sold through agents.

32) B

The option cost is the difference between the zero volatility spread and the OAS, or 150 − 75 = 75 bp. With a flat yield curve, the G-spread and zero volatility spread will be the same.

33) A

This bond is priced at a discount to par value because its 4% coupon is less than its 5.2% yield to maturity. As the bond gets closer to maturity, the discount will amortize toward par value, which means its price will increase if its yield remains unchanged. For its price to remain unchanged, its yield would have to increase.  
 Price with 10 years to maturity:  
   
 N = 10; I/Y = 5.2; PMT = 40; FV = 1,000; CPT PV = −908.23  
   
 Yield with 8 years to maturity:  
   
 N = 8; PMT = 40; FV = 1,000; PV = −908.23; CPT I/Y = 5.446%

34) A

The benchmark yield increased, which suggests macroeconomic factors were unfavorable for bond prices overall. The corporate bond’s spread to its benchmark decreased from 250 basis points to 225 basis points, which suggests microeconomic factors were favorable for the bond’s price.

35) C

Compared to portfolio duration based on the cash flow yield of the portfolio, portfolio duration calculated as a weighted average of the durations of the individual bonds in the portfolio is easier to calculate and can be used for bonds with embedded options. Portfolio duration calculated using the cash flow yield for the entire portfolio is theoretically more correct.

36) C

With Macaulay duration equal to the investment horizon, market price risk and reinvestment risk approximately offset and the annualized horizon return should be close to the yield to maturity at purchase.

37) B

Credit risk is calculated with the probability of default (estimated from the bond rating) and the estimated recovery value should the bond default. Yield volatility is combined with duration to estimate the *price risk* of a bond.

38) B

Modified duration is less than Macaulay duration. The effective duration of a putable bond is less than its modified duration ignoring the put option.

39) B

Credit risk is calculated with the probability of default (estimated from the bond rating) and the estimated recovery value should the bond default. Yield volatility is combined with duration to estimate the *price risk* of a bond.

40) B

Modified duration is less than Macaulay duration. The effective duration of a putable bond is less than its modified duration ignoring the put option.

41) B

935(1.035)30 = $2,624   
 Bond coupons: 30 × 35 = $1,050   
 Principal repayment: $1,000   
 2,624 − 1,000 − 1050 = $574 required reinvestment income

42) C

If the investment horizon is shorter than the Macaulay duration, the price impact of a decrease in YTM dominates the loss of reinvestment income and the realized yield will be higher than the YTM at purchase.

43) A

Steven’s higher EBITDA/interest ratio is consistent with a higher credit rating than Joseph but its higher debt-to-capital ratio is consistent with a lower credit rating. Steven is most likely to have the same credit rating as Joseph.

44) C

Other things being equal, the amount of reinvestment risk embedded in a bond will decrease with lower coupons because there will be a lesser dollar amount to reinvest and with shorter maturities because the reinvestment period is shorter.

45) B

The only true statement is that putable bonds will have less price volatility at higher yields. At higher yields the put becomes more valuable and reduces the decline in price of the putable bond relative to the option-free bond. On the other hand, when yields are low, the put option has little or no value and the putable bond will behave much like an option-free bond. Therefore at low yields a putable bond will not have more price volatility nor will it have less price volatility than a similar option-free bond.

46) A

We can use duration and convexity to estimate the price effect of changes in spread in the same way we use them to estimate the price effect of changes in yield:  
 Percent change in bond value = −duration (change in yield or spread) + (1/2) (convexity) (squared change in yield or spread)  
 No adjustment for credit risk is needed and an analyst should use modified or effective duration.

47) C

Structural subordination means that cash flows from a subsidiary are used to pay the subsidiary’s debt before they may be paid to the parent company to service its debt. As a result, parent company debt is effectively subordinate to the subsidiary's debt.

48) C

Duration and convexity assume the yield curve shifts in a parallel manner. A downward (upward) sloping term structure of yield volatility suggests shifts in the yield curve are likely to be non-parallel because short-term interest rates are more (less) volatile than long-term interest rates.

49) A

In this case the only determinant that will cause higher interest rate risk is having a low yield to maturity. A higher coupon rate and a higher current yield will result in lower interest rate risk.

50) B

If the term structure of yield volatility slopes upward, long-term interest rates are more variable than short-term interest rates.

51) A

The advisor’s description of the sources of return from investing in a bond is incomplete because it does not include the income from reinvesting the bond’s coupon payments. Although it is true that an investor who holds a bond to maturity will not realize a capital gain or loss, this is not why the advisor’s statement is incorrect.

52) C

Inclusion of a call feature will decrease the duration of a fixed income security. The other choices increase duration.