SECTION I (1.5 point x 10 = 15 points): Choose only one of the 5 choices and clearly circle the letter in each question. No credit will be given based on scratch work in or between lines without clear marking.

1. AF is preparing a bond offering with an 8% coupon rate. Each of the bonds has a face value of $1,000 and will be repaid in 10 years. The company plans to issue the bonds at a premium and pay interest semi-annually. Which of the following statements is/are correct?
   I. The initial selling price of each bond will be higher than $1,000.
   II. After the bonds have been outstanding for 1 year, you should use 18 as the number of sub-periods when calculating the market value of the bond.
   III. The annual coupon interest payment will be $80.
   IV. The yield to maturity when the bonds are first issued is lower than 8%.
   A. I and II only
   B. II and III only
   C. II, III, and IV only
   D. I, II, and III only
   E. All of the above

2. Which of the following statements is/are true?
   I. Dividend income received by corporations is mostly (70%) tax-deductible.
   II. In the U.S., debt has dominated as a source of financing, typically between 70% and 90%.
   III. Issuing junk bonds is nowadays considered as illegal.
   A. I only
   B. I and II only
   C. II only
   D. I, II, and III
   E. None of the above

3-4. The total number of shares outstanding in UBCorp is 10,000 shares, 4 directors will be elected, and 6 candidates run for the 4 seats in the cumulative voting.

3. If you own 200 shares, how many votes can you cast?
   A) 800 votes
   B) 1,200 votes
C) 2,001 votes  
D) 8,004 votes  
E) 1,430 votes

4. If you are one of the 6 candidates, how many shares will guarantee a seat for you?  
A) 800 shares  
B) 1,200 shares  
C) 2,001 shares  
D) 8,004 shares  
E) 1,430 shares

5. Which of the following statements is/are true?  
(i) If the coupon rate of a bond is higher than the yield to maturity, the bond sells at a discount.  
(ii) When interest rates increase, the prices of bonds will also increase because higher interest rates imply that the economy is growing.  
A. (i)  
B. (ii)  
C. both (i) and (ii)  
D. none of the above  
E. insufficient information

6. Which of the following statements is/are true?  
I. Dividends paid on preferred stock are not tax-deductible.  
II. Unpaid dividends on preferred stock trigger default of the firm because preferred stock is often considered as a fixed-income security.  
III. If preferred dividends are cumulative, then preferred dividends not paid in a particular year will be carried forward to the next year.  
A) I only  
B) I and III only  
C) II and III only  
D) All of the above  
E) None of the above.

7. If a bond is puttable, the yield on it will be generally ________ .  
A) higher than otherwise  
B) lower than otherwise  
C) dependent on the economic situation  
D) dependent on the inflation rate  
E) none of the above
8. Which of the following statements is/are true?
I. A standard arrangement for the gradual retirement of long-term debt calls for the corporation to make regular payments into a pension fund account.
II. Poison pill allows bondholders to sell the bonds back to the issuer firm at par in case the firm takes too much risk.
III. STRIPS are coupon bonds that allow lenders to exchange the bonds for common shares of the borrower firm anytime before maturity.

A) I only
B) II only
C) I and II only
D) I and III only
E) None of the above

9. Which of the following statements is/are true?
I. Preemptive right is the right (given to the existing shareholders) to buy newly issued shares proportionally to protect their ownership.
II. Mortgage pass-throughs and CMOs are some examples of asset-backed bonds.
III. Samurai bonds are an example of Eurobonds.

A. I only
B. I and II only
C. II only
D. I, II, and III
E. None of the above

10. Y Corp. issues a $1,000 face value, 5-year zero-coupon bond. Its price is set at $508.35. What is the yield to maturity (YTM), if semi-annual compounding is used?
A) 11%
B) 12%
C) 13%
D) 14%
E) 15%
1. (18 points) AB Corp. (ABC) recently issued new securities to finance a project. The project cost $25 million and the firm paid a total of $1.5 million in flotation costs. The equity issued had a flotation cost of 7%, whereas the debt issued has a flotation cost of 3%. ABC issued new securities in the same proportion as its target capital structure (i.e., target debt-equity ratio).

1) (4 pts) Based on the information given above, what is the weighted average flotation cost for the project?

2) (6 pts) Now you like to find ABC’s target debt-equity ratio. First, let D/E = u. Then fill out the following part using all the information available so that the right-hand side of the equation includes only one unknown (i.e., u).

\[ f_{WAVG} = x_E f_E + x_P f_P + x_D f_D \]

3) (8 pts) Given the information in 1) and 2), solve out for the target debt-equity ratio (i.e., u).

SECTION II (85 points): Whenever necessary, show the equations or expressions leading to the final answer. Note that in some questions no partial credit (NPC) is available. In multiple choice questions, choose only one of the 5 choices and clearly circle the letter. In the final answers, show dollar amounts rounded up to a cent (e.g., $25.38) and other numbers rounded up to 4 decimal places (e.g., 2.3857).
2. (25 points) UB Corp. (UBC) has 2 million shares of common shares outstanding. The stock sells at $15 per share. The firm has 7,000 bonds on the market that pay coupon interest semi-annually: each bond with 15.5 years to maturity, a YTM of 8%, and a current price of $1,100 per bond. Assume that the face value of each bond is $1,000. The risk-free rate is 3%, and the return on the market portfolio is 11%. The firm’s beta is 1.25 and the corporate tax rate is 38%.

1) (5 pts) Calculate the weights for UBC’s equity and debt based on their market values.

2) (5 pts) What is the cost of equity capital for UBC?

3) (5 pts) Given the information above, what is the weighted average cost of capital (WACC) for UBC?
4) (10 pts) Given the information above, you like to find the (annual) coupon rate on the bonds.

(a) (4 ps: NPC) First, show the equation to compute the per-period (every 6 months) coupon payment (for each bond).

(b) (3 ps) What is the per-period (every 6 months) coupon payment (for each bond)?
   A) $45.69  B) $46.69  C) $47.69  D) $48.69  E) $48.48

(c) (3 ps) So what is the (annual) coupon rate on each bond?
3. (20 points) Consider a coupon bond with a coupon rate of 10%. The par value is $1000 and the bond has 35 years to maturity. The yield to maturity is 8%.

1) (a) (5 pts: NPC) The coupon interest is paid annually. Show the equation for computing the price of the bond.

(b) (2 pts) What is the price of the bond (P₀)? A) 1,323.09  B) 1,233.09  C) 1,332.09  D) 1,332.58  E) 923.58

2) The coupon interest is paid annually. The value of this bond at the end of year 1 (at t=1) consists of two components.

(a) (1 pts) What is the accrued coupon interest at t=1?

(b) (5 pts: NPC) Show the equation to find the PV (evaluated at t=1) of the remaining CFs from the bond (i.e., P₁), excluding the coupon interest accrued at t=1.

(c) (1 pts) What is the total value of the bond at t=1 (i.e., P₁)?
   A) 1,210.59  B) 1,133.59  C) 1,133.74  D) 1,231.74  E) 1,313.74

3) The coupon interest is paid quarterly.

(a) (4 pts: NPC) Show the equation for computing the price of the bond (at t=0).

(b) (2 pts) What is the price of the bond (P₀)? A) 1,324.33  B) 1,432.33  C) 1,423.37  D) 1,234.37  E) 1,243.37
4. (22 points) BBI Corp. has an outstanding perpetual bond with a 9% coupon rate that can be called in one year. The bond makes annual coupon payments. The call premium is set at $250 (excluding the coupon interest accrued at t=1) over par value. The face (par) value of the bond is $1,000. There is a 40% chance that the interest rate in one year will be 12%, and a 60% chance that the interest rate will be 7%. The current interest rate is 11%. To obtain the price of BBI’s callable bond, answer the following questions.

1) Suppose that the interest rate increases to 12% in a year. (a) (5 pts: NPC) In this case, what is the probable price (excluding the coupon interest accrued) of the bond to the bondholder at the end of year 1 (i.e., $P^H_1$ at t=1)? (b) (2 pts) Will BBI call the bond at t=1? Why or why not? (c) (2 pts) Based on the available information, what is the effective price of the bond to the bondholder if the interest rate increases to 12% at t=1 (i.e., $P^H_1$)?

2) Suppose that the interest rate decreases to 7% in a year. (a) (5 pts: NPC) In this case, what is the probable price (excluding the coupon interest accrued) of the bond to the bondholder at the end of year 1 (i.e., $P^L_1$ at t=1)? (b) (2 pts) Will BBI call the bond at t=1? Why or why not? (c) (2 pts) Based on the available information, what is the effective price of the bond to the bondholder if the interest rate decreases to 7% at t=1 (i.e., $P^L_1$)?

3) (a) (2 pts) Given the information above, what is the expected price of the bond to the bondholder at t=1 [i.e., $E(P_1)$]? (b) (2 pts) Thus, what is the price of the callable bond (at t=0) (i.e., $P_0$)?