

※ 考生請注意：本試題可使用計算機。請於答案卷(卡)作答，於本試題紙上作答者，不予計分。

Section A: Multiple Choice Questions (80 marks, 4 points each)

1. Suppose United Bank offers to lend you \$10,000 for one year at a nominal annual rate of 8.00%, but you must make interest payments at the end of each quarter and then pay off the \$10,000 principal amount at the end of the year. What is the effective annual rate on the loan?
 - A. 8.24%
 - B. 8.45%
 - C. 8.66%
 - D. 8.88%
 - E. 9.10%

2. Which of the following statements is CORRECT?
 - A. Two bonds have the same maturity and the same coupon rate. However, one is callable and the other is not. The difference in prices between the bonds will be greater if the current market interest rate is below the coupon rate than if it is above the coupon rate.
 - B. A callable 10-year, 10% bond should sell at a higher price than an otherwise similar noncallable bond.
 - C. Corporate treasurers dislike issuing callable bonds because these bonds may require the company to raise additional funds earlier than would be true if noncallable bonds with the same maturity were used.
 - D. Two bonds have the same maturity and the same coupon rate. However, one is callable and the other is not. The difference in prices between the bonds will be greater if the current market interest rate is above the coupon rate than if it is below the coupon rate.
 - E. The actual life of a callable bond will always be equal to or less than the actual life of a noncallable bond with the same maturity. Therefore, if the yield curve is upward sloping, the required rate of return will be lower on the callable bond.

3. Suppose a new company decides to raise a total of \$200 million, with \$100 million as common equity and \$100 million as long-term debt. The debt can be mortgage bonds or debentures, but by an iron-clad provision in its charter, the company can never raise any additional debt beyond the original \$100 million. Given these conditions, which of the following statements is CORRECT?
- A. The higher the percentage of debt represented by mortgage bonds, the riskier both types of bonds will be and, consequently, the higher the firm's total dollar interest charges will be.
 - B. If the debt were raised by issuing \$50 million of debentures and \$50 million of first mortgage bonds, we could be certain that the firm's total interest expense would be lower than if the debt were raised by issuing \$100 million of debentures.
 - C. In this situation, we cannot tell for sure how, or whether, the firm's total interest expense on the \$100 million of debt would be affected by the mix of debentures versus first mortgage bonds. The interest rate on each of the two types of bonds would increase as the percentage of mortgage bonds used was increased, but the result might well be such that the firm's total interest charges would not be affected materially by the mix between the two.
 - D. The higher the percentage of debentures, the greater the risk borne by each debenture, and thus the higher the required rate of return on the debentures.
 - E. If the debt were raised by issuing \$50 million of debentures and \$50 million of first mortgage bonds, we could be certain that the firm's total interest expense would be lower than if the debt were raised by issuing \$100 million of first mortgage bonds.
4. The risk-free rate is 6% and the market risk premium is 5%. Your \$1 million portfolio consists of \$700,000 invested in a stock that has a beta of 1.2 and \$300,000 invested in a stock that has a beta of 0.8. Which of the following statements is CORRECT?
- A. If the stock market is efficient, your portfolio's expected return should equal the expected return on the market, which is 11%.
 - B. The required return on the market is 10%.
 - C. The portfolio's required return is less than 11%.
 - D. If the risk-free rate remains unchanged but the market risk premium increases by 2%, your portfolio's required return will increase by more than 2%.
 - E. If the market risk premium remains unchanged but expected inflation increases by 2%, your portfolio's required return will increase by more than 2%.

5. Bob has a \$50,000 stock portfolio with a beta of 1.2, an expected return of 10.8%, and a standard deviation of 25%. Becky also has a \$50,000 portfolio, but it has a beta of 0.8, an expected return of 9.2%, and a standard deviation that is also 25%. The correlation coefficient, r , between Bob's and Becky's portfolios is zero. If Bob and Becky marry and combine their portfolios, which of the following best describes their combined \$100,000 portfolio?
- A. The combined portfolio's expected return will be less than the simple weighted average of the expected returns of the two individual portfolios, 10.0%.
 - B. The combined portfolio's beta will be equal to a simple weighted average of the betas of the two individual portfolios, 1.0; its expected return will be equal to a simple weighted average of the expected returns of the two individual portfolios, 10.0%; and its standard deviation will be less than the simple average of the two portfolios' standard deviations, 25%.
 - C. The combined portfolio's expected return will be greater than the simple weighted average of the expected returns of the two individual portfolios, 10.0%.
 - D. The combined portfolio's standard deviation will be greater than the simple average of the two portfolios' standard deviations, 25%.
 - E. The combined portfolio's standard deviation will be equal to a simple average of the two portfolios' standard deviations, 25%.
6. Which of the following statements is CORRECT?
- A. If a company has two classes of common stock, Class A and Class B, the stocks may pay different dividends, but under all state charters the two classes must have the same voting rights.
 - B. The preemptive right gives stockholders the right to approve or disapprove of a merger between their company and some other company.
 - C. The preemptive right is a provision in the corporate charter that gives common stockholders the right to purchase (on a pro rata basis) new issues of the firm's common stock.
 - D. The stock valuation model, $P_0 = D_1 / (r_s - g)$, cannot be used for firms that have negative growth rates.
 - E. The stock valuation model, $P_0 = D_1 / (r_s - g)$, can be used only for firms whose growth rates exceed their required returns.

7. An analyst wants to use the Black-Scholes model to value call options on the stock of Ledbetter Inc. based on the following data:

- The price of the stock is \$40.
- The strike price of the option is \$40.
- The option matures in 3 months ($t = 0.25$).
- The standard deviation of the stock's returns is 0.40, and the variance is 0.16.
- The risk-free rate is 6%.

Given this information, the analyst then calculated the following necessary components of the Black-Scholes model:

- $d_1 = 0.175$
- $d_2 = -0.025$
- $N(d_1) = 0.56946$
- $N(d_2) = 0.49003$

$N(d_1)$ and $N(d_2)$ represent areas under a standard normal distribution function. Using the Black-Scholes model, what is the value of the call option?

- A. \$2.81
- B. \$3.12
- C. \$3.47
- D. \$3.82
- E. \$4.20

8. Which of the following statements is CORRECT?

- A. Since the costs of internal and external equity are related, an increase in the flotation cost required to sell a new issue of stock will increase the cost of retained earnings.
- B. Since its stockholders are not directly responsible for paying a corporation's income taxes, corporations should focus on before-tax cash flows when calculating the WACC.
- C. An increase in a firm's tax rate will increase the component cost of debt, provided the YTM on the firm's bonds is not affected by the change in the tax rate.
- D. When the WACC is calculated, it should reflect the costs of new common stock, retained earnings, preferred stock, long-term debt, short-term bank loans if the firm normally finances with bank debt, and accounts payable if the firm normally has accounts payable on its balance sheet.
- E. If a firm has been suffering accounting losses that are expected to continue into the foreseeable future, and therefore its tax rate is zero, then it is possible for the after-tax cost of preferred stock to be less

than the after-tax cost of debt.

9. Which of the following statements is CORRECT?

- A. The bond-yield-plus-risk-premium approach to estimating the cost of common equity involves adding a risk premium to the interest rate on the company's own long-term bonds. The size of the risk premium for bonds with different ratings is published daily in *The Wall Street Journal*.
- B. The WACC is calculated using a before-tax cost for debt that is equal to the interest rate that must be paid on new debt, along with the after-tax costs for common stock and for preferred stock if it is used.
- C. An increase in the risk-free rate is likely to reduce the marginal costs of both debt and equity.
- D. The relevant WACC can change depending on the amount of funds a firm raises during a given year. Moreover, the WACC at each level of funds raised is a weighted average of the marginal costs of each capital component, with the weights based on the firm's target capital structure.
- E. Beta measures market risk, which is generally the most relevant risk measure for a publicly-owned firm that seeks to maximize its intrinsic value. However, this is not true unless all of the firm's stockholders are well diversified.

10. You are on the staff of Camden Inc. The CFO believes project acceptance should be based on the NPV, but Steve Camden, the president, insists that no project should be accepted unless its IRR exceeds the project's risk-adjusted WACC. Now you must make a recommendation on a project that has a cost of \$15,000 and two cash flows: \$110,000 at the end of Year 1 and -\$100,000 at the end of Year 2. The president and the CFO both agree that the appropriate WACC for this project is 10%. At 10%, the NPV is \$2,355.37, but you find two IRRs, one at 6.33% and one at 527%, and a MIRR of 11.32%. Which of the following statements best describes your optimal recommendation, i.e., the analysis and recommendation that is best for the company and least likely to get you in trouble with either the CFO or the president?

- A. You should recommend that the project be accepted because (1) its NPV is positive and (2) although it has two IRRs, in this case it would be better to focus on the MIRR, which exceeds the WACC. You should explain this to the president and tell him that the firm's value will increase if the project is accepted.
- B. You should recommend that the project be rejected because its NPV is negative and its IRR is less than the WACC.
- C. You should recommend that the project be rejected because, although its NPV is positive, it has an IRR that is less than the WACC.

- D. You should recommend that the project be rejected. Although its NPV is positive it has two IRRs, one of which is less than the WACC, which indicates that the firm's value will decline if the project is accepted.
- E. You should recommend that the project be rejected because, although its NPV is positive, its MIRR is less than the WACC, and that indicates that the firm's value will decline if it is accepted.

11. Which of the following statements is CORRECT?

- A. An externality is a situation where a project would have an adverse effect on some other part of the firm's overall operations. If the project would have a favorable effect on other operations, then this is not an externality.
- B. An example of an externality is a situation where a bank opens a new office, and that new office causes deposits in the bank's other offices to increase.
- C. The NPV method automatically deals correctly with externalities, even if the externalities are not specifically identified, but the IRR method does not. This is another reason to favor the NPV.
- D. Both the NPV and IRR methods deal correctly with externalities, even if the externalities are not specifically identified. However, the payback method does not.
- E. Identifying an externality can never lead to an increase in the calculated NPV.

12. Vasudevan Inc. forecasts the free cash flows (in millions) shown below. If the weighted average cost of capital is 13% and the free cash flows are expected to continue growing at the same rate after Year 3 as from Year 2 to Year 3, what is the Year 0 value of operations, in millions?

Year:	1	2	3
Free cash flow:	-\$20	\$42	\$45

- A. \$586
- B. \$617
- C. \$648
- D. \$680
- E. \$714

13. Grullon Co. is considering a 7-for-3 stock split. The current stock price is \$75.00 per share, and the firm believes that its total market value would increase by 5% as a result of the improved liquidity that it thinks would follow the split. What is the stock's expected price following the split?
- A. \$33.75
 - B. \$34.25
 - C. \$35.44
 - D. \$37.21
 - E. \$39.07
14. Stephens Electronics is considering a change in its target capital structure, which currently consists of 25% debt and 75% equity. The CFO believes the firm should use more debt, but the CEO is reluctant to increase the debt ratio. The risk-free rate, r_{RF} , is 5.0%, the market risk premium, RP_M , is 6.0%, and the firm's tax rate is 40%. Currently, the cost of equity, r_s , is 11.5% as determined by the CAPM. What would be the estimated cost of equity if the firm used 60% debt?
- A. 10.95%
 - B. 11.91%
 - C. 12.94%
 - D. 14.07%
 - E. 15.29%
15. Which of the following statements is CORRECT?
- A. A firm that makes 90% of its sales on credit and 10% for cash is growing at a constant rate of 10% annually. Such a firm will be able to keep its accounts receivable at the current level, since the 10% cash sales can be used to finance the 10% growth rate.
 - B. In managing a firm's accounts receivable, it is possible to increase credit sales per day yet still keep accounts receivable fairly steady, provided the firm can shorten the length of its collection period (its DSO) sufficiently.
 - C. Because of the costs of granting credit, it is not possible for credit sales to be more profitable than cash sales.
 - D. Since receivables and payables both result from sales transactions, a firm with a high receivables-to-sales ratio must also have a high payables-to-sales ratio.
 - E. Other things held constant, if a firm can shorten its DSO, this will lead to a higher current ratio.

16. Heavy use of off-balance sheet lease financing will tend to
- make a company appear less risky than it actually is because its stated debt ratio will appear lower.
 - make a company appear more risky than it actually is because its stated debt ratio will be increased.
 - affect a company's cash flows but not its degree of risk.
 - have no effect on either cash flows or risk because the cash flows are already reflected in the income statement.
 - affect the lessee's cash flows but only due to tax effects.
17. Curry Corporation is setting the terms on a new issue of bonds with warrants. The bonds will have a 30-year maturity and annual interest payments. Each bond will come with 20 warrants that give the holder the right to purchase one share of stock per warrant. The investment bankers estimate that each warrant will have a value of \$10.00. A similar straight-debt issue would require a 10% coupon. What coupon rate should be set on the bonds-with-warrants so that the package would sell for \$1,000?
- 6.75%
 - 7.11%
 - 7.48%
 - 7.88%
 - 8.27%
18. Kotomin Inc. wants to sell stock via a rights offering. The company has 1,000,000 shares outstanding, and they sell for \$90 per share. The new issue will be used to raise \$8 million of new equity, and existing shareholders will receive one right per share held. Theoretically, if the subscription price is \$80, (1) how many new shares must be sold, (2) how many rights per share of new stock will be required, (3) what will the value of each right be, and (4) what will the stock price be after the rights offering has been completed?

	<u>New Shs</u>	<u>No. of Rights</u>	<u>Value</u>	<u>Ending Price</u>
A.	100,000	8	\$1.38	\$88.62
B.	100,000	9	\$1.05	\$88.95
C.	100,000	10	\$0.91	\$89.09
D.	120,000	8	\$1.05	\$88.95
E.	120,000	10	\$1.38	\$88.62

19. Which of the following statements about valuing a firm using the APV approach is most CORRECT?

- A. The horizon value is calculated by discounting the free cash flows beyond the horizon date and any tax savings at the levered cost of equity.
- B. The horizon value is calculated by discounting the free cash flows beyond the horizon date and any tax savings at the cost of debt.
- C. The horizon value is calculated by discounting the expected earnings at the WACC.
- D. The horizon value is calculated by discounting the free cash flows beyond the horizon date and any tax savings at the WACC.
- E. The horizon value must always be more than 20 years in the future.

20. Companies HD and LD have the same tax rate, sales, total assets, and basic earning power. Both companies have positive net incomes. Company HD has a higher debt ratio and, therefore, a higher interest expense. Which of the following statements is CORRECT?

- A. Company HD has a lower equity multiplier.
- B. Company HD has more net income.
- C. Company HD pays more in taxes.
- D. Company HD has a lower ROE.
- E. Company HD has a lower times interest earned (TIE) ratio.

Section B: Essay Questions (20 marks)

1. List FIVE reasons why risk management might increase the value of a firm. Please provide your answer in English ONLY. (10 marks)
2. Why might purchasing power parity fail to hold? Please provide your answer in English ONLY. (10 marks)