

【財金所】

Part A: Multiple Choice Questions (75 points, 2.5 points for each question. Please select the best answer.)

1. What is true about a zero coupon bond?
 - (A) It is sold at a large premium.
 - (B) It is sold at a price that is equal to the face value.
 - (C) It has less interest rate risk than a comparable coupon bond.
 - (D) It has a market price that would converge to the face value at maturity.

2. Andy invested \$3000 at a guaranteed annual rate of 4.35% compounded continuously. What his investment will be worth after five years?
 - (A) \$3711.79
 - (B) \$3728.90
 - (C) \$3698.56
 - (D) \$3812.54

3. Which of the following statement about the capital budgeting methods is true?
 - (A) You need to have the discount rate to compute the NPV but you can estimate IRR without have a discount rate.
 - (B) You must have a discount rate to compute NPV, IRR, PI, and discounted payback method.
 - (C) There is always only one IRR for a project.
 - (D) None of above is true.

4. The total return on a stock is equal to:
 - (A) the growth rate of the dividends.
 - (B) the dividend yield minus the capital gains yield.
 - (C) the dividend yield divided by the sum of the dividend yield and capital gains yield.
 - (D) the sum of dividend yield and the dividend growth rate.

5. The diversification effect tells us that we should:
 - (A) concentrating an investment in two or three large stocks to eliminate idiosyncratic risk.

- (B) concentrating an investment in companies within the same industry to eliminate systematic risk.
- (C) spreading an investment across many diverse assets to eliminate idiosyncratic risks.
- (D) spreading an investment across many diverse assets to eliminate systematic risks.

6. The slope of the security market line is the:

- (A) beta coefficient.
- (B) market risk premium.
- (C) portfolio weight.
- (D) exposure to the market factor.

7. An efficient set of portfolio is constructed using:

- (A) the portion of the opportunity set that is below the minimum variance portfolio.
- (B) the maximum returns that you can invest in your portfolio.
- (C) the dominant portion of the opportunity set.
- (D) the complete opportunity set.

8. Supposing that a single factor APT model can describe the asset returns, the factor beta of the market portfolio would be:

- (A) zero.
- (B) one.
- (C) impossible to estimate without the asset combination of the market.
- (D) irrelevant to the model.

9. When using WACC as a discount rate for a firm's new project, the cash flows of the project should:

- (A) have the same risk level as the firm's current operations.
- (B) be financed only with newly issued debt and equity.
- (C) be financed with the same proportions of debt and equity as those currently used by the firm.
- (D) be financed solely with internal equity.

10. The MM theory with taxes implies that the optimal capital structure is to issue maximum debt. However, in reality most firms do not use 100% debt because:

- (A) the bond interest is generally higher than the dividend yield of a stock.
- (B) the WACC is inversely related the leverage ratio.
- (C) bankruptcy is also a cost of using debt.
- (D) debt is more risky than equity.

11. Which of the following statement about capital structure is true?

- (A) A firm with unstable cash flows tends to use more debt.
- (B) Investors will generally view an increase in debt as a positive sign for the firms' value.
- (C) Rational firms raise debt levels when profits are expected to decline.
- (D) A success firm will be an all-equity firm.

12. ABC-tech company announced an investment in the new cell-phone technology.

This announcement increases both the stock price and the volatility of the firm's stock. How will the two market reactions affect the put options on ABC stock?

- (A) The reactions will have offsetting effects on the options.
- (B) Both reactions will increase the value of the put options.
- (C) Both reactions will decrease the value of the put options.
- (D) Neither reaction will affect the value of the put options.

13. The cost of equity of JJ Co. is 8.4%, and the debt to equity ratio is 0.6. The expected return on the market portfolio is 10.4%, and the risk-free rate is 3.8%.

What is the asset beta of JJ Co.?

- (A) 0.62
- (B) 0.44
- (C) 0.86
- (D) 0.79

14. In a CAPM model, a firm will generally have a:

- (A) high beta if the sales are highly dependent on the market cycle.
- (B) high beta if the sales are very volatile.
- (C) high beta if the firm has high idiosyncratic risk.
- (D) high beta if the manager prefers cash dividend to share repurchases.

15. If shareholders have expectation toward corporate announcements, the impact of the announcement would be discounted. If an announcement causes the price to change, the change would mostly be driven by:

- (A) market inefficiency.
- (B) the unexpected part of the announcement.
- (C) the expected part of the announcement.
- (D) the reduction of idiosyncratic risk.

16. Which of the following mechanisms is used to motivate managers to act in the interest of shareholders?

- (A) Bond covenants.
- (B) The threat of a takeover.
- (C) Pressure from the board of directors.
- (D) Answers (B) and (C) are correct.

17. Which of the following best describes free cash flow?

- (A) Free cash flow is the amount of cash flow available for distribution to all investors after all necessary investments in operating capital have been made.
- (B) Free cash flow is the amount of cash flow available for distribution to shareholders after all necessary investments in operating capital have been made.
- (C) Free cash flow is the net change in the cash account on the balance sheet.
- (D) Free cash flow is equal to net income plus depreciation.

18. Division A has a higher ROE than Division B, yet Division B creates more value for shareholders and has a higher EVA than Division A. Both divisions, however, have positive ROEs and EVAs. What could explain these performance measures?

- (A) Division A is riskier than Division B.
- (B) Division A is much larger (in terms of equity capital employed) than Division B.
- (C) Division A has less debt than Division B.
- (D) Statements (A) and (B) are correct.

19. Considering each action independently and holding other things constant, which of the following actions would *reduce* a firm's need for additional capital?

- (A) An increase in the dividend payout ratio.
- (B) A decrease in the profit margin.

- (C) A decrease in the days sales outstanding.
- (D) An increase in expected sales growth.

20. Which of the following statements is most correct?

- (A) If companies have fewer productive opportunities, interest rates are likely to increase.
- (B) If individuals increase their savings rate, interest rates are likely to increase.
- (C) If expected inflation increases, interest rates are likely to increase.
- (D) Answers (A) and (C) are correct.

21. You hold a diversified portfolio consisting of a \$5,000 investment in each of 20 different common stocks. The portfolio beta is equal to 1.15. You have decided to sell one of your stocks, a lead mining stock whose β is equal to 1.0, for \$5,000 net and to use the proceeds to buy \$5,000 of stock in a steel company whose β is equal to 2.0. What will be the new beta of the portfolio?

- (A) 1.12
- (B) 1.20
- (C) 1.22
- (D) 1.10

22. Which is the best measure of risk for an asset held in isolation? Which is the best measure for an asset held in a diversified portfolio?

- (A) Standard deviation; correlation coefficient
- (B) Beta; variance
- (C) Coefficient of variation; beta
- (D) Beta; beta

23. Which of the following is most correct?

- (A) The present value of a 5-year annuity due will exceed the present value of a 5-year ordinary annuity. (Assume that both annuities pay \$100 per period and there is no chance of default.)
- (B) If a loan has a nominal rate of 10 percent, then the effective rate can never be less than 10 percent.
- (C) If there is annual compounding, then the effective, periodic, and nominal rates of interest are all the same.
- (D) All of the answers above are correct.

24. All of the following may serve to reduce the coupon rate that would otherwise be required on a bond issued at par, except a

- (A) Sinking fund.
- (B) Restrictive covenant.
- (C) Call provision.
- (D) Change in rating from Aa to Aaa.

25. XYZ Corporation's stock is selling for \$40 in the market. The company's beta is 0.8, the market risk premium is 6 percent, and the risk-free rate is 9 percent. The previous dividend was \$2 (i.e., $D_0 = \$2$) and dividends are expected to grow at a constant rate. What is the growth rate for this stock?

- (A) 5.52%
- (B) 5.00%
- (C) 13.80%
- (D) 8.38%

26. A company has determined that its optimal capital structure consists of 40 percent debt and 60 percent equity. Given the following information, calculate the firm's weighted average cost of capital.

$$\begin{array}{ll} k_d = 6\% & \text{Tax rate} = 40\% \\ P_0 = \$25 & \text{Growth} = 0\% \\ D_0 = \$2.00 & \end{array}$$

- (A) 6.02%
- (B) 6.24%
- (C) 7.02%
- (D) 7.24%

27. Which of the following statements is most correct?

- (A) If a project's internal rate of return (IRR) exceeds the cost of capital, then the project's net present value (NPV) must be positive.
- (B) If Project A has a higher IRR than Project B, then Project A must also have a higher NPV.
- (C) The IRR calculation implicitly assumes that all cash flows are reinvested at a rate of return equal to the cost of capital.
- (D) None of the answers above is correct.

28. The ABC Copy Company is contemplating the replacement of its old printing machine with a new model costing \$60,000. The old machine, which originally cost \$40,000, has 6 years of expected life remaining and a current book value of \$30,000 versus a current market value of \$24,000. ABC's corporate tax rate is 40

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percent. If ABC sells the old machine at market value, what is the initial after-tax outlay for the new printing machine?

- (A) -\$22,180 (B) -\$30,000
(C) -\$33,600 (D) -\$36,000

29. Which of the following are *not* real options?

- (A) The option to expand production if the product is successful.
(B) The option to buy additional shares of stock if the stock price goes up.
(C) The option to expand into a new geographic region.
(D) The option to switch sources of fuel used in an industrial furnace.

30. DEF Books sells paperback books for \$7 each. The variable cost per book is \$5.

At current annual sales of 200,000 books, the publisher is just breaking even. It is estimated that if the authors' royalties are reduced, the variable cost per book will drop by \$1. Assume authors' royalties are reduced and sales remain constant; how much more money can the publisher put into advertising (a fixed cost) and still break even?

- (A) \$600,000 (B) \$466,667 (C) \$333,333 (D) \$200,000

Part B: Problems (25 points)

1. CCU Inc. is a \$84 stock and it is about to pay a \$4 per share cash dividend. Amy has 160 shares and prefers a \$6 dividend.

(1) Show how Amy can use a homemade dividend strategy to achieve her goal.

(6 points)

(2) Explain why dividend policy is irrelevant if investors can use homemade dividend strategy. (6 points)

2. Using the corporate valuation model, the value of a company's operations is \$400 million. The company's balance sheet shows \$20 million in short-term investments that are unrelated to operations. The balance sheet also shows \$50 million in accounts payable, \$90 million in notes payable, \$30 million in long-term debt, \$40 million in preferred stock, and \$100 million in total common equity. If the company has 10 million shares of stock, what is your best estimate for the stock price per share? (13 points)

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Part A: Multiple Choice Questions

1. (D)

2. (B)

$$3000 \times e^{0.0435 \times 5} = 3729$$

3. (A)

4. (D)

5. (C)

6. (B)

7. (C)

8. (B)

9. (A)

10. (C)

11. (B)

12. (A)

13. (B)

$$k_e = 0.084$$

$$\frac{D}{E} = \frac{6}{10}$$

$$R_m = 0.104$$

$$R_f = 0.038$$

$$0.038 + (0.104 - 0.038) \times \beta_e = 0.084$$

$$\beta_e = 0.69$$

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$$\beta_{TA} = 0 \times \frac{6}{16} + 0.69 \times \frac{10}{16}$$
$$= 0.4356$$

14. (A)

15. (B)

16. (B)

17. (A)

18. (A)

$$EVA = EBIT \times (1 - T_c) - (D + E) \times WACC$$

$$ROE^A > ROE^B$$

$$EVA^A < EVA^B$$

~B 獲利能力較好，但 ROE 卻較低，應該財務槓桿的操作較小。

19. (C)

$$AFN = \left(\frac{A_0}{S_0}\right)\Delta S - \left(\frac{L_0}{S_0}\right)\Delta S - S_1 \times m \times (1 - d)$$

20. (C)

21. (B)

$$1.15 = x + \frac{1}{20} \times 1$$

$$x = 1.1$$

$$1.1 + \frac{1}{20} \times 2 = 1.2$$

22. (C)

23. (D)

24. (C)

25. (D)

$$P_0 = 40, \beta = 0.8, R_m - R_f = 0.06, R_f = 0.09$$

$$D_0 = 2$$

$$k_s = 0.09 + 0.06 \times 0.8 = 0.138$$

$$0.138 = \frac{2 \times (1+y)}{40} + g$$

$$g = 8.38\%$$

26. (B)

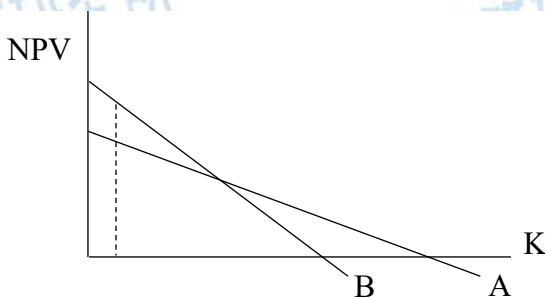
$$k_e = \frac{D_1}{P_0} + g = \frac{2}{25} = 0.08$$

$$WACC = 0.06 \times 0.6 \times 0.4 + 0.08 \times 0.6 = 6.24\%$$

27. (D)

(A) 投資計劃是對的，融資計劃則是錯的。

(B)



(C) IRR 假設再投資 R 仍是 IRR。

28. (C)

$$+24000$$

$$+(30,000 - 24,000) \times 0.4$$

$$\underline{-60,000}$$

$$\underline{-33,6000}$$

29. (B)

30. (D)

$$P = 7, V.C = 5, Q = 200,000$$

$$200,000 \times 7 = 5 \times 200,000 + FC$$

$$FC = 400,000$$

$$200,000 \times 7 = 4 \times 200,000 + FC$$

$$FC = 600,000.$$

200,000

Part B: Problems

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1. $P_0 = 84, D_0 = 4$

(1) $160 \times 4 + 84x = 160 \times 6$

$x = 3.80952381$

賣掉 3.80952381 股

(2) 見講義書內容

2.

$400 + 20 - \cancel{50} - 90 - 30 - 40 = 260$

∴ WC 已算入

$\frac{260}{10} = 26$

∴ 每股市價 = 26