考　試　科　目	財務管理	所　　別	財務管理系 4171	考試時間	2 月 22 日(六) 第二節

Part I: Multiple choice (20 points)

1. Which of the following are true statements about the internal rate of return?
   A. If A and B are two projects, then IRR(A)+IRR(B)=IRR(A+B)
   B. If IRR<WACC, then NPV<0
   C. If IRR>0, then NPV>0
   D. IRR are always unique
   E. None of the above

2. Rank the following forms of business organization in terms of highest to lowest agency costs between owners and management.
I. Sole proprietorship, II. Corporation, III. General partnership
   A. I, II, III
   B. II, I, III
   C. III, II, I
   D. II, III, I
   E. None of the above

3. Because of agency costs, which of the following can happen?
I. The corporation's capital structure can be affected
II. Management may accept projects with a negative net present value
III. Management may reject projects with a positive net present value
   A. I only
   B. II only
   C. II and III only
   D. I, II and III
   E. None of the above

4. A firm in the extraction industry whose major assets are cash, equipment and a closed facility may appear to have extraordinary value. This value can be primarily attributed to:
   A. the potential sale of the firm
   B. the option to re-open the facility when prices rise dramatically
   C. the low exercise price of the facility held by shareholders
   D. The option to abandon the facility
   E. None of the above

5. Which of the following are plausible reasons for firms paying dividends?
I. there is a clientele that prefers dividends
II. dividends provide a credible signal of future performance
III. firms that pay dividends are more valued by investors
   A. I only

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

PART II: True/False (20 points); is each of the following statements true or false? Why? A one sentence explanation should be sufficient in each case. Note that a correct guess with no explanation will receive NO credit.

1. According to the pecking theory of financing, long-term debt is preferred to external equity because the cost of capital for debt is lower than the cost of capital for equity.
2. Ignoring financial distress costs, agency costs, and other market imperfections, the risk of a company's debt, regardless of the level of leverage, can never be higher than the level of risk faced by equity holders in an unlevered company with identical business risk.
3. In general, expected earnings per share (EPS) are maximized at the same level of debt that maximizes stock price.
4. The fact that announcements of dividend increases often cause stock prices to rise is evidence that investors prefer high dividend paying stocks to low dividend paying stocks.

PART III: Problems (60 points); show your work, including intermediate calculations and formulas. Correct answers, with no work shown, will receive NO credit. Please keep your discussions brief.

1. Greff Inc. is interested in the impact that increasing its leverage may have on its WACC. It is currently an all-equity firm with beta = 1.2. The market value of its equity is \$10 million. After discussions with an investment bank, it estimates that if it takes on \$5 million in debt its cost of debt will be 13%, while if it takes on \$6 million in debt, its cost of debt will be 14%. The debt would be used to repurchase shares. (Assume that one dollar of debt will retire one dollar of equity.) What level of leverage will minimize Greff's WACC? Assume: R_F (risk-free rate) = 5%; R_M (expected market return) = 12%; tax rate = 40%. (10 points)

2. Hot Inc. and Cold Inc. are planning to merge without refinancing. The following financial data are available (all values are market values.)
Expected market return = 11%; risk-free rate =5%

	Hot	Cold
Beta	1	2
Debt	0	10
Equity	10	10

What will the merged firm's cost of equity be? Assume all tax rates are 40%. (10 points)

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3. ABC Inc. currently has $1 million in equity and $2 million in debt. Its tax rate is 40%. Its cost of debt is 10%, and its cost of equity is 20%. What is ABC's unlevered cost of equity? Assuming the MM formula and no growth, what is ABC's expected after-tax net operating income (free cash flow)? (20 points)

4. XYZ Inc. is considering investment in producing steam-powered boats. The cash flows associated with this project are as follows:

0	Demand	Probability	1	2	3	…
-100	High	1/3	24	24	24	…
	Low	2/3	1.5	1.5	1.5	…

If the demand is high, XYZ can add a second factory at the end of the first year, which will also operate at full capacity. If the discount rate for this project is 10% and the annual risk-free rate is 2%, please derive the expansion option (the option to add a second factory at the end of the first year) value using the binomial option pricing approach. What is the appropriate (expected) discount rate for this expansion option under the binomial approach? (20 points)

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