

※ 注意：請於試卷內之「非選擇題作答區」依序作答，並應註明作答之大題及小題題號。

第一部分：公司理財（共五十分）

（一） 單選題（共二十五分；每題五分）

1. Which of the following statements is false regarding the investment decision rules?
 - a) The internal rate of return (IRR) rule works for a stand-alone project if all of the project's negative cash flows precede its positive cash flows.
 - b) There are situations in which IRRs do not exist.
 - c) If a change in the timing of the cash flows does not affect the net present value (NPV), then the change in timing will not impact the IRR.
 - d) The incremental IRR tells us the discount rate at which it becomes profitable to switch from one project to the other.
 - e) Problems arise using the IRR rule when the mutually exclusive investments have different scales.

2. ABC Corp. is planning on investing in a new project. The new project will involve the purchase of some new machinery costing \$450,000, and ABC Corp. expects its cash inflows as follows.

Year 1	Year 2	Year 3	Year 4
\$200,000	\$225,000	\$275,000	\$300,000

The discount rate for this project is 12%. The profitability index for the new project is closest to:
 - a) 0.85
 - b) 2.22
 - c) 0.88
 - d) 0.65
 - e) 1.22

3. Suppose that XYZ Corp. is currently an unlevered firm with 12% cost of equity. XYZ Corp. is considering borrowing funds at a cost of 6% and using these funds to repurchase existing stocks. Assuming perfect capital markets, if XYZ Corp. borrows until it achieves a debt-to-asset ratio of 40%, then what is its levered cost of equity?
 - a) 15.6%
 - b) 9.6%
 - c) 12.0%
 - d) 14.4%
 - e) 16.0%

4. Assuming that the corporate tax rate is 40%, the personal tax rate on income from equity is 20% and that on interest income is 30%. The effective tax advantage of debt is closest to:
 - a) 31.43%
 - b) 26.67%
 - c) 33.33%
 - d) 40.00%
 - e) 14.29%

見背面

5. Which of the following statements is false regarding the corporate payout policy?
- a) Because long-term investors can defer the capital gains tax until they sell, there is a tax advantage for share repurchases over dividends.
 - b) Managers are much less committed to dividend payments than to share repurchases.
 - c) The dividend-capture theory states that in absence of transaction costs, investors can trade shares at the time of the dividend so that non-taxed investors receive the dividend.
 - d) Differences in tax preferences create clientele effects, in which the dividend policy of a firm is optimized for the tax preference of its investor clientele.
 - e) While many investors have a tax preference for share repurchases rather than dividends, the strength of that preference depends on the difference between the dividend tax rate and the capital gain tax rate that they face.

(二) 簡答題 (配分詳見各題)

1. In a highly levered firm with risky debt, shareholders (firm management) may make decisions which lead to the agency costs of leverage. Briefly discuss one of the possible decisions shareholders make to exploit debtholders. (十分，答案以六行為限，否則不予計分)
2. The underpricing of initial public offering (IPO) stocks is one of the well-known empirical puzzle financial economists document in corporate finance. Define IPO underpricing and briefly discuss the possible reason(s) for such phenomenon. (十分，答案以六行為限，否則不予計分)
3. Explain (also with graph) that the equity of a firm can be viewed as a call option. (五分，答案以四行為限，否則不予計分，繪圖不在此限)

第二部分：投資管理個案 (共五十分，每題五分)

Professor Samuel Oak, who is an expert in Pikachu and many other Pokémon monsters, wishes to maintain the operation of the Pokémon Center in Kanto region. To finance the maintenance expenses and run the endowment fund of the Pokémon Center, he is considering following investment questions, including 8 multiple choice questions (多選題) and 2 computation questions. Please help Professor Samuel answer questions below. Note that there may be more than one correct answer for each multiple choice question (please write your answers without any reasons for questions 1-8). Brief reasons and computation steps are needed for computation questions 9 and 10.

1. Professor Samuel considers investments in bond market as a major part of the endowment operation. Which of following one(s) is a security in bond market?
(A) T-bill
(B) Municipal bonds
(C) Accounting receivable
(D) Corporate bond
(E) Treasury notes

2. Professor Samuel wishes to avoid a bias of investment that means that investors are too slow in updating their beliefs in response to evidence. This bias could be known as _____ bias?
- (A) conservatism
 - (B) regret avoidance
 - (C) overconfidence
 - (D) framing
 - (E) anchoring
3. As the second category of investment, Professor Samuel considers stocks with low P/E ratios, which generally indicate that the companies tend to _____, ceteris paribus.
- (A) grow quickly
 - (B) grow slowly
 - (C) be undervalued
 - (D) be overvalued
 - (E) has high price risk
4. Considering a constant growth model of stock valuation, k is the discount rate, b is the retention ratio, g is the growth rate, then P/E ratio is
- (A) Present value to earnings ratio
 - (B) Price to earnings ratio
 - (C) a ratio of $b/(k-g)$
 - (D) a ratio of $(1-b)/(k-g)$
 - (E) equal to 17.14 if $k=12.5\%$, $b=60\%$, and $g=9\%$.
5. Professor Samuel wants to know more about equity valuation. In a standard stock valuation model, the price of a stock should be a direct function of _____
- (A) cash dividend payout ratio
 - (B) stock dividend payout ratio
 - (C) discount rate
 - (D) earnings
 - (E) book liability
6. Professor Samuel hopes the capital market is an efficient capital market. Which of following(s) is a correct statement of the efficient market hypothesis (EMH).
- (A) EMH implies that uninformed investors cannot earn positive return in the capital market
 - (B) EMH implies that uninformed investors can earn positive abnormal return in the capital market
 - (C) The assumed information set of a strong form of EMH is larger than that of a weak form of EMH.
 - (D) The assumed information set of a semi-strong form of EMH is larger than that of a weak form of EMH.
 - (E) Semi-strong form of EMH implies that a random selected portfolio earns statistically similar returns as a professional managed fund, where the fund managers do not have inside information.

7. As the third category of investment, Professor Samuel considers mutual fund investment. If a mutual fund, which is also a portfolio p consists of N stocks $\{x_1, \dots, x_N\}$, with equal weights and heterogeneous returns $\{r_1, \dots, r_N\}$. Its variance σ_p^2 could

- (A) be smaller when N is larger
- (B) is a quadratic form of average of variances of r_1 to r_N .
- (C) converge to zero when N approaches infinite
- (D) converge to the average of covariances between r_i and r_j ($i \neq j$) when N approaches the infinite
- (E) is appropriately equal to unsystematic risk when N approaches the infinite

8. Which of following(s) is potential mutual fund expense that Professor Samuel could pay to the mutual fund company?

- (A) Front-end load
- (B) Back-end load
- (C) 12b-1 fees
- (D) Fund manager's compensation
- (E) Management fees

9. Professor Samuel expects the economy's rate of inflation to be 3%. Risk-free-rate (RFR) is 9%. Market return (RM) is 12%. Please answer following two questions by CAPM.

- a. Draw Security Market Line (SML). [2%]
- b. Draw another SML on the same graph to reflect an RFR of 9% and an RM of 17%. [3%]

10. In addition to CAPM, Professor Samuel also consider the Fama-French three-factor model to evaluate his stock portfolio. please answer the following questions based on his estimates below.

	<i>Intercept</i>	<i>$r_m - r_f$</i>	<i>SMB</i>	<i>HML</i>	<i>R-square</i>
Coefficient estimates	0.3046	0.9888	-0.0247	-0.5182	95.1%
SD of estimates	(0.2031)	(0.1383)	(0.024)	(0.1289)	

- a. Please compute abnormal return, and state whether this investment strategy can earn abnormal return [2%]
- b. Does this stock portfolio on averagely include low P/E stocks? Why or why not? [3%]

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