

考 試 科 目	財務管理	系 所 別	財務管理學系	考 試 時 間	2 月 6 日(二) 第三節
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Part I. Multiple Choice Questions (40 points, 5 points each)

1. You are offered an investment opportunity that costs you \$28,000, has a net present value (NPV) of \$2,278, lasts for three years, has an interest rate of 10%, and produces the following cash flows:

Date	0	1	2	3
Cash Flow	-\$28,000	\$10,000	\$12,000	?

The missing cash flow from year 3 is closest to

- (A) \$12,000
- (B) \$12,500
- (C) \$13,000
- (D) \$15,000

2. CRSP company announced that it plans to cut its dividend from \$3.00 to \$1.50 per share and use the extra funds to expand its operations. Prior to this announcement, CRSP's dividends were expected to grow indefinitely at 4% per year and CRSP's stock was trading at \$25.50 per share. With the new expansion, CRSP's dividends are expected to grow at 5% per year indefinitely. Assuming that CRSP's risk is unchanged by the expansion, the value of a share of CRSP after the announcement is closest to

- (A) \$13.93
- (B) \$19.32
- (C) \$25.50
- (D) \$38.63

3. The following table summarizes prices of various default-free zero-coupon bonds (expressed as a percentage of face value):

Maturity (years)	1	2	3	4
Price (per \$100 face value)	94.52	89.68	85.40	81.65

Based on the information provided in the table above, you can conclude

- (A) nothing about the shape of the yield curve
- (B) that the yield curve is a horizontal line
- (C) that the yield curve is downward sloping
- (D) that the yield curve is upward sloping

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4. A company is choosing between two mutually exclusive projects as follows: Project A is a two-year project worth \$250,000 in terms of net present value, while Project B is a five-year project worth \$500,000 in terms of net present value. The discount rate is 8%. What investment or investments should it make?

- (A) Project A
- (B) Project B
- (C) Projects A and B
- (D) Neither

5. Apple Inc. has debt with both a face and a market value of \$227,000. This debt has a coupon rate of 7 percent and pays interest annually. The expected earnings before interest and taxes is \$87,200, the tax rate is 21 percent, and the unlevered cost of capital is 12 percent. What is the firm's cost of equity?

- (A) 13.25%
- (B) 13.89%
- (C) 13.92%
- (D) 14.27%

6. Google Inc. wants to sell 25 million shares using a Dutch Auction to price its shares for an IPO. Google's underwriter starts the auction. Investors then privately submit bids stipulating the number of shares they are willing to purchase and the price they are willing to pay. Summary of bids the underwriter received:

Bidders	Shares	Bid Price
A	3,000,000	\$50
B	5,000,000	\$53
C	2,000,000	\$42
D	5,000,000	\$45
E	4,000,000	\$60
F	8,000,000	\$55

Determine the selling price.

- (A) \$42
- (B) \$45
- (C) \$53
- (D) \$60

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7. The stock return of XYZ has an annual standard deviation of 40% and a beta of 1.2. The annual standard deviation of the market return is 22%. Please calculate firm-specific risk (i.e., unsystematic risk) using the single-index model.

- (A) 0.030976
(B) 0.050976
(C) 0.129024
(D) 0.149024

8. Consider the multifactor APT. There are two independent economic factors, F1 and F2. The risk-free rate of return is 10%. The following information is available about two well-diversified portfolios:

Portfolio	Beta on F1	Beta on F2	Expected Return
A	1	2	19%
B	2	0	12%

Assuming no arbitrage opportunities exist, the risk premium on the factor F2 portfolio should be

- (A) 3%
(B) 4%
(C) 5%
(D) 6%

Part II. Calculations and Essays (60 points)

1. In the Modigliani–Miller setting, firms U and L are identical except for their capital structures. Ignore depreciation and tax. EBIT is projected to be \$100, \$250, and \$300 if economic conditions are recession, normal, and expansion, respectively.

	U	L
Assets	\$2,000	\$2,000
Debt	0	1,000
Equity	2,000	1,000
Share Price	20	20
Shares outstanding	100	50
Interest rate		10%

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- (1) (10 points) Mr. Brown wants to buy 500 shares of the firm L's equity, what cash flow is he expecting?
- (2) (10 points) Show how Mr. Brown could generate exactly the same cash flows by investing in firm U and using homemade leverage.

2. Suppose we observe the following situation:

Company	Beta	Expected Return
A	0.60	14.40%
B	0.30	10.20%

Assume that these two companies are correctly priced.

- (1) (5 points) What is the risk-free rate?
- (2) (5 points) What is the expected return of the market portfolio?
- (3) (10 points) If Apple Co. has a Beta of 1.2 and an expected return of 24%. Is the price of Apple correctly priced? If not, please identify whether the stock is overpriced or underpriced.

3. Consider a firm that has an EPS of \$10 at the end of the first year, a dividend payout ratio of 40%, a discount rate of 16%, and a return on retained earnings of 20%.

- (1) (5 points) Calculate the price of a share using the "dividend growth model."
- (2) (5 points) Calculate the price of a share of the "cash-cow" firm (i.e., a company pays all of its earnings out to stockholders as dividends).
- (3) (10 points) Calculate the net present value of the growth opportunities (NPVGO).

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註

- 一、作答於試題上者，不予計分。
二、試題請隨卷繳交。