

注意：※※一律作答於所附之考試答案卷(本)上。若於試題卷上作答者，將不予計分※※

第一大題：選擇題（共八十分）。

1. (5 points) Apex-Growth follows the Lintner Model to manage shareholder expectations. The firm has a target payout ratio of 50% and a speed of adjustment coefficient of 0.4. Last year, the firm earned \$6.00 per share and paid a dividend of 2.00 per share. This year, earnings have increased to \$12.00 per share and are expected to remain at this level indefinitely. What will the dividend per share be at the end of the third year (Year 3) following this earnings increase?

- (A) \$3.000
- (B) \$3.600
- (C) \$4.245
- (D) \$4.562
- (E) \$5.136

2. (5 points) Five different companies are bidding for a private oil field. Each company conducts its own geological survey. The surveys return estimated values of \$80M, \$90M, \$100M, \$110M, and \$120M. The true value is exactly \$100M. If all bidders bid their “best estimate” of the value, which theoretical insight best explains the outcome?

- (A) Synergy: The winner will create \$20M in value because they value it most.
- (B) Market Efficiency: The average bid is \$100M, so the market is efficient.
- (C) The Winner’s Curse: The winning bidder is the one who most overestimated the value, likely leading to a negative NPV.
- (D) Agency Theory: The \$120M bidder is “empire building” to increase their bonus.
- (E) Information Signaling: The \$120M bid signals to the market that oil prices are about to rise.

3. (5 points) A multinational corporation is evaluating an investment in a country with a high risk of expropriation (the government taking over private assets). What is the most theoretically sound way to handle this Political Risk in a Net Present Value (NPV) calculation?

- (A) Increase the discount rate by a “risk premium” (e.g., adding 5% to the WACC).
- (B) Adjust the expected cash flows downward to reflect the probability of loss in various “states of the world.”
- (C) Ignore the risk if the project has a positive NPV, as diversification eliminates political risk for shareholders.
- (D) Only invest if the government provides a guaranteed “buy-back” agreement.

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(E) Use the domestic (home country) risk-free rate to discount all foreign cash flows.

4. (5 points) The followings are four potential acquirers (all else equal): which deal should have the most negative expected reaction from the stock market?

1. Cash-poor, non-overconfident CEO
2. Cash-rich, non-overconfident CEO
3. Cash-poor, overconfident CEO
4. Cash-rich, overconfident CEO

Which is predicted to have the most negative announcement reaction?

- (A) 1
- (B) 2
- (C) 3
- (D) 4
- (E) All equal

5. (5 points) The “separation property” implies that the determination of the optimal risky portfolio is:

- (A) Dependent on each client's risk aversion.
- (B) A purely technical task independent of risk aversion.
- (C) Only possible when the risk-free rate is zero.
- (D) Based solely on firm-specific risk.
- (E) Identical to the capital allocation decision.

6. (5 points) Under Prospect Theory, an investor's utility is defined by changes in wealth rather than total wealth. A trader has just lost \$100,000 in the morning session. She is offered a “double-or-nothing” bet on the afternoon session with a 50/50 chance of recovery. As a partially irrational trader, how will she likely behave compared to a standard “rational” investor?

- (A) She will reject the bet because she is risk-averse in all domains.
- (B) She will accept the bet because her utility curve is convex in the domain of losses.
- (C) She will reject the bet because of regret avoidance regarding the morning loss.
- (D) She will accept the bet because mental accounting treats the loss as “house money.”
- (E) She will reject the bet because conservatism bias makes her slow to react.

7. (5 points) A large technology firm is classified as a growth firm with a low book-to-market ratio. It has the following Fama-French loadings: Market beta (β_M) = 1.2, Size beta (β_{SMB}) = -0.4, and Value beta (β_{HML}) = -

0.9. The risk-free rate is 2%, the market risk premium is 8%, and the premiums for SMB and HML are 3% and 4%, respectively. What is the firm's expected return under the Fama-French Three-Factor Model, and what does the HML loading imply?

- (A) 6.8%; the negative HML loading indicates the firm is a "growth" firm with superior future prospects.
- (B) 11.6%; the negative HML loading indicates the firm is highly sensitive to financial distress.
- (C) 6.8%; the negative HML loading indicates the firm acts as a hedge against value-factor risk.
- (D) 4.8%; the negative SMB loading implies the firm is a small-cap stock.
- (E) 6.8%; the negative loadings suggest the firm has a negative total risk premium.

8. (5 points) A company has issued European call options to its executives as part of their compensation package. Historically, the firm has reinvested all earnings into new projects. However, the board is now considering a shift in dividend policy to begin paying a continuous dividend yield of 3% per year to satisfy shareholders. Based on the Black-Scholes model with dividends, what is the most likely impact of this policy shift on the stakeholders?

- (A) The value of the executive call options will increase because dividends are a sign of firm health and reduced default risk.
- (B) The value of the executive call options will decrease because, all other things being equal, dividends lower the stock price and the holder does not receive the dividend.
- (C) The value of the "put option" held by stockholders (viewed through the lens of risky debt) will decrease due to the lower asset base.
- (D) The "delta" of the call options will increase, making the options more sensitive to stock price movements to compensate for the dividend loss.
- (E) There will be no impact on the option value because the Black-Scholes model assumes the risk-free rate is continuously compounded.

9. (5 points) As part of the annual risk-reweighting exercise, the NTU Investment Committee is evaluating two specific tranches. The historical covariance between these two specific instruments has been calculated at exactly 0.0000, suggesting no linear relationship.

Tranche Alpha (A): A statistical review shows a volatility profile (σ) of 0.2015. The current analyst consensus projects a mean annualized return of 19.85%.

Tranche Beta (B): This tranche exhibits a lower volatility of 14.80%. The projected yield-to-maturity and expected capital gains provide an aggregate expected return of 10.25%.

Please determine the expected return of the portfolio that resides at the leftmost point of the efficient frontier.

- (A) 12.50%
- (B) 13.61%
- (C) 14.32%

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(D) 15.05%

(E) 16.49%

10. (5 points) Our department has completed a fundamental analysis of &NVIDAA, which is currently trading at a market spot price of \$52.40 per share. Based on our proprietary 12-month discounted cash flow model and recent guidance from the board, we expect the following:

1. Capital Gains: The price target for the 12-month horizon is projected at \$59.00.
2. Income Generation: The equity is forecasted to issue a cash dividend of \$2.62 per share at the end of the holding period.

Market Context and Risk Metrics:

- The broader market is currently yielding an equity risk premium of 850 basis points.
- The 10-year Treasury note (serving as the risk-free proxy) is currently at 4.25%.
- Statistical regression of &NVIDAA against the S&P 500 confirms a systematic risk coefficient of 1.25.

Determine the alpha of this position to justify a "Strong Buy" recommendation.

(A) -2.28%

(B) 2.14%

(C) 2.73%

(D) 6.97%

(E) 17.60%

11. (5 points) The risk desk has finalized the Ordinary Least Squares (OLS) regression of Asset Omega's monthly excess returns against the MSCI World Index. The committee will utilize the following coefficient estimates and their respective 95% confidence intervals for the upcoming rebalancing meeting.

Statistical Variable	Point Estimate (Coefficient)	Lower 95% Bound	Upper 95% Bound
Jensen's Alpha (Constant)	1.425%	0.125%	2.725%
Systematic Sensitivity (Beta)	1.218	0.985	1.451

Based on the new data in the table above and the principles of the Efficient Market Hypothesis (EMH), which of the following statements are correct? (Select all that apply)

- (A) The manager has generated a positive abnormal return that is statistically significant at the 95% confidence level.
- (B) We can conclude with 95% certainty that this asset is "Aggressive" (Beta > 1.0) because the point estimate is 1.218.
- (C) According to the semi-strong form of the EMH, these results suggest that the market may not be fully efficient, or that this specific alpha is a result of the "lucky event" issue.

(D) A proponent of a passive investment strategy would likely argue that these results are a statistical anomaly and would still advise against active management.

12. (5 points) The Treasury Department of NTU Tech Corp is evaluating its future cash needs. The company currently holds a portfolio of highly liquid, default-free zero-coupon instruments to fund a major R&D project scheduled for two years from today.

The lead analyst has compiled the following current market yields for these Treasury zeros (all with a \$1,000 face value):

Instrument	Maturity	Current Yield (YTM)
Series I	1 Year	6.0%
Series II	2 Years	7.5%
Series III	3 Years	8.0%

The CFO is considering selling the Series III holdings in exactly 12 months to pay for early-stage equipment. Assuming the pure expectations hypothesis is the only factor influencing the yield curve and that no liquidity premiums are required by the market, what is the projected liquidation value per unit of the Series III bonds at that time?

- (A) \$821.14
- (B) \$841.69
- (C) \$857.33
- (D) \$891.26

13. (5 points) Exactly one year ago, Nexus Fund acquired a significant position in "Aero-Dynamics" 8-year bonds at a price reflecting a 5.0% yield to maturity (YTM). The bonds carry a \$1,000 par value and a 7.0% annual coupon.

Today, after receiving the first annual interest payment, the fund is liquidating the position. Due to a shift in the interest rate environment, the market's required YTM for these bonds is now 4.5%. Nexus Fund is subject to a 20% flat tax rate on all investment income, including both coupon payments and capital gains. Please calculate the after-tax annual total rate of return (holding period return) for this investment. Select the option that is closest to your calculated value.

- (A) 5.12%
- (B) 6.24%
- (C) 6.94%
- (D) 7.79%

14. (7 points) You are a senior analyst at Elon Capital. You are evaluating Summit Peak Enterprises (SPE) to determine if it is currently underpriced in the market. You have gathered the following financial data:

Variable	Value
Risk-free Rate (r_f)	4.5%
Expected Return on the Market ($E(r_m)$)	11.5%
Summit Peak Beta (β)	1.2
Expected Earnings Per Share (EPS_t)	\$4.50
Expected Return on Equity (ROE)	16%
Earnings Retention (Plowback) Ratio (b)	40%

Please calculate the intrinsic value of SPE today (V_0) and determine what percentage of that value is represented by the present value of growth opportunities (PVGO). Choose the option that most closely matches your results.

- (A) $V_0 = \$34.88$; PVGO % = 0%
- (B) $V_0 = \$41.54$; PVGO % = 16.03%
- (C) $V_0 = \$56.25$; PVGO % = 24.12%
- (D) $V_0 = \$75.00$; PVGO % = 33.33%

15. (8 points) You are analyzing Titan Logistics, a firm with a complex capital structure. The company is transitioning its debt levels, and you need to determine the value of its equity based on its most recent financial reports.

Earnings Before Interest and Taxes (EBIT)	\$550 million
Interest Expense	\$45 million
Corporate Tax Rate	30%
Depreciation & Amortization	\$60 million
Capital Expenditures (CapEx)	\$110 million
Increase in Net Working Capital (NWC)	\$25 million
Net Debt Increase during the year (net new borrowing)	\$15 million
Market Value of Existing Debt	\$800 million
Cost of Equity (COE)	13%
Weighted Average Cost of Capital (WACC)	10%
Perpetual Growth Rate (g)	3.5%

Please compute the following:

Free Cash Flow to the Firm (FCFF) _____

Free Cash Flow to Equity (FCFE) _____

Determine the Total Market Value of Equity using the FCFF-to-Firm Value approach _____

- (A) FCFF: \$250.0M; FCFE: \$265.0M; Total Market Value: \$3,377.37M
- (B) FCFF: \$310.0M; FCFE: \$278.5M; Total Market Value: \$3,969.23M
- (C) FCFF: \$310.0M; FCFE: \$293.5M; Total Market Value: \$4,136.15M
- (D) FCFF: \$335.0M; FCFE: \$280.0M; Total Market Value: \$4,936.15M
- (E) FCFF: \$385.0M; FCFE: \$310.0M; Total Market Value: \$5,736.15M

第二大題：填充題（共二十分）

注意事項：

※※請詳列計算過程(請至少計算至小數點後第二位)，若只有答案將不予計分※※

※※一律作答於所附之考試答案卷(本)上。若於試題卷上作答者，將不予計分※※

※※答案請於答案卷(本)上標示清楚，如 ANS: _____ ※※

※※每題 5 分※※

16. (5 points) Firm X (Value = \$1,000) is acquiring Firm Y (Value = \$400). Firm X estimates that by eliminating redundant staff, they will save \$20/year in perpetuity. They also expect to increase their market power, allowing for an immediate \$50 increase in combined asset value. The cost of capital for both firms is 10%. Firm X agrees to pay \$500 cash for Firm Y. The Net Present Value of this deal for Firm X's shareholders is _____

17. (5 points) Hyper-Drive Systems is entering the electric propulsion industry. Their only pure-play competitor, Volt-Tech, is financed with a debt-to-equity (B/S) ratio of 0.8. Volt-Tech has a cost of equity (R_S) of 18% and a borrowing rate (R_B) of 8%. Both firms face a 21% corporate tax rate. Hyper-Drive plans to maintain a more conservative target debt-to-value (B/V) ratio of 25% and expects to borrow at 7%. What is the Weighted Average Cost of Capital (WACC) that Hyper-Drive should use for this new venture?

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18. (5 points) The Popov Company has assets worth 1,200 today. It has issued a one-year zero coupon bond with a face value of 1,000. The continuously compounded risk-free rate is 5%. A one-year call option on the firm's assets with an exercise price of 1,000 is currently valued at 280. Using the relationship of Put-Call Parity for a firm's capital structure, what is the value of the "implicit put option" stockholders hold? (Note: $e^{-0.05} \approx 0.95125$) Value of the "implicit put option" _____

19. (5 points) A firm just reported earnings of \$10.00 per share. It maintains a retention ratio of 60% and a constant ROE of 20%. After 3 years of this high-growth phase, the firm will increase its payout ratio to 70% and its growth will settle into a perpetual 5%. The required return is 15%. Calculate the current stock price _____

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