

國立中山大學 96 學年度碩士班招生考試試題

科目：經濟學【財管系碩士班】

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總體經濟部分：選擇題，每題四分，單選

1. 若物價無僵固性，依新興古典學派思想，若央行在四月一日宣佈調升貨幣供給成長率，則在當日，A)長期利率上揚 B)台幣升值 C)短期利率下跌 D)金價下跌 E)經濟成長提高
2. 下列何者不包含於 GNP 中？ A)災難救濟金 B)國人在國外工作薪資 C)房屋仲介銷售舊屋所得佣金 D)公務員薪資 E)房屋租金
3. 下列何者不會使 M1B 的貨幣乘數降低？ A)民眾將活存提出改以現金形式持有 B)銀行保有較多超額準備金 C)民眾將活期存款轉存為定期存款 D)央行調降定存的存款準備率
4. 依下列模型

$$Y = f(L, \bar{K}), \partial Y / \partial L > 0, \partial^2 Y / \partial L^2 < 0$$

$$Y = C(Y) + I(r) + G$$

$$M/P = \alpha Y - \beta r$$

$$\bar{W} = P \cdot MPL(L, \bar{K})$$

在勞動市場中，有僵固性名目工資，但物價可變動。當能源價格上漲時，設 $\partial^2 Y / \partial L \partial Q < 0$ ，Q 代表能源價格，則新均衡與原均衡相較 A)總需求線右移 B)總供給線右移 C)工資上揚，勞動供給線右移 D)因物價上漲，勞動需求增加，致就業增加 E)就業減少

5. 一國生產 NDP 與人民可支配所得不同，下列何者不是其原因？ A)政府移轉性支出 B)間接稅 C)直接稅 D)儲蓄 E)企業未分配盈餘
6. 若一國景氣低迷，下列何者最能顯示復甦的跡象？ A)進口減少 B)自發性消費增加 C)利率持續低迷 D)銀行定期存款增加，活期存款減少 E)國際收支順差
7. 設一般 IS-LM 模型構成總需求，當貨幣供給增加，下列何者使總需求線右移幅度提高？ A)邊際消費傾向下降 B)IS-LM 模型中自發性消費乘數下降 C)貨幣需求受所得影響的程度下降 D)IS-LM 模型中政府消費乘數下降
8. 依一般 IS-LM 模型，但投資需求由實質利率決定而貨幣需求由名目利率決定，現在若企業預期物價上漲，民眾則預期物價穩定，則 A)名目利率不變 B)名目利率上升 C)物價下跌 D)所得減少 E)貨幣供給減少
9. 香港多年來皆維持港幣/美元匯率不變，資本完全自由移動，則以一般 IS-LM-BP 小國模型分析，下列何者為內生變數？ A)均衡所得與均衡匯率 B)均衡利率與均衡實質貨幣供給 C)均衡所得與均衡利率 D)均衡所得與均衡實質貨幣供給
10. 若某國利率上升，實質所得下降，物價上漲率提高，則此經濟狀況最可能由下列何原因導致？ A)總供給 B)總需求 C)貨幣供需 D)政府支出
11. 台灣消費者物價指數 A)衡量商品批發價 B)不含服務業價格 C)衡量實體商品及服務業價格 D)含股票價格 E)含平均薪資水準

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12. 下列一般古典模型

$$Y = f(L, K), \partial Y / \partial L > 0, \partial^2 Y / \partial L^2 < 0$$

$$L^s = L(W/P), dL^s / d(W/P) > 0$$

$$L^d = L^d(W/P), dL^d / d(W/P) < 0,$$

$$M = kPY, I(r) = S(r, Y), \partial I / \partial r < 0, \partial S / \partial r > 0, \partial S / \partial Y > 0$$

勞動需求線即為勞動邊際生產力，若技術 T 進步，使 $\partial Y / \partial L \partial T > 0$ ，導致 A) 均衡名目貨幣供給增加 B) 均衡利率下降 C) 均衡名目貨幣需求增加 D) 均衡實質工資下降

13. 描述中國近年來的經濟情形 A) 貿易順差，外匯存底增加，經濟快速成長 B) 貿易逆差，外匯存底減少，經濟快速成長 C) 貿易順差，外匯存底增加，經濟低迷 D) 貿易逆差，外匯存底減少，經濟低迷

個體經濟部份：

1. (a) What is the law of demand? [2 credit points] (b) Given the law of demand, what is the shape of the demand curve? [2 credit points] (c) Provide three different reasons to explain the shape of the demand curve. [2 credit points]
2. (a) What is an externality? [6 credit points] (b) Explain the relationship between a negative externality and the allocational efficiency of resources. [10 credit points]
3. In a closed economy Z, the beef-noodle is a popular meal. It has two input ingredients, beef and noodle. One day (maybe due to the work condition issue) the noodle workers decide to have a week-long strike (it means they do not go to work for one week). However, this planned strike has caused the protest from the beef workers who do not have any work condition problem. Explain why? You can use demand and supply graphs to facilitate your explanation. [16 credit points]

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I、單選題(共 15 題，每題 4 分)

1. Which of the following statements are correct concerning taxes and leasing?
 - I. Tax-deferral is a legitimate reason for leasing.
 - II. The lessor should be the party with the higher tax bracket.
 - III. Leases should increase the total taxes paid.
 - IV. If a firm has significant net operating losses, they should be the lessor in a lease.
 - A. I and III only
 - B. II and IV only
 - C. I and II only
 - D. II and III only
 - E. III and IV only
2. Which of the following statements concerning acquisitions are correct?
 - I. Being acquired by another firm is an effective method of replacing senior management.
 - II. The net present value of an acquisition should have no bearing on whether or not the acquisition occurs.
 - III. Acquisitions are often relatively complex from an accounting and tax point of view.
 - IV. The value of a strategic fit is easy to estimate using discounted cash flow analysis.
 - A. I and III only
 - B. II and IV only
 - C. I and IV only
 - D. I, III, and IV only
 - E. I, II, III, and IV
3. Which of the following statements are correct?
 - I. Vega measures the sensitivity of an option's value to the passage of time.
 - II. Theta measures the sensitivity of an option's value to the passage of time.
 - III. Call options tend to be more sensitive to the passage of time than are put options.
 - IV. An increase in time increases the value of a call option.
 - A. I and III only
 - B. II and IV only
 - C. II, III, and IV only
 - D. I, III, and IV only
 - E. I, II, III, and IV
4. An interest rate swap:
 - I. should be beneficial to both parties to the contract.
 - II. is often used in conjunction with a currency swap.
 - III. is theoretically appealing but rarely used in actual practice.
 - IV. Can be used to change the index which underlies the variable rate on a firm's debt.
 - A. I and III only
 - B. II and IV only
 - C. I, II, and IV only
 - D. I, III, and IV only
 - E. I, II, III, and IV
5. Which one of the following is an argument in favor of a low dividend policy?
 - A. the tax on capital gains is deferred until the gain is realized
 - B. few, if any, positive net present value projects are available to the firm
 - C. a preponderance of stockholders have minimal taxable income
 - D. a majority of stockholders have other investment opportunities that offer higher rewards with similar risk characteristics
 - E. corporate tax rates exceed personal tax rates
6. The static theory of capital structure supports the theory that value-maximizing managers will:
 - A. look to the asset side of the balance sheet to increase firm value since the mix of debt and equity selected is unlikely to affect firm value.

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- B. not concern themselves with the capital structure of the firm as it is an irrelevant issue.
C. select the capital structure for which the cost associated with the probability of financial distress equals the benefit of the interest tax shield.
D. select an all equity capital structure to ensure the value of the firm is maximized.
E. select the capital structure which maximizes the interest tax shield.
7. Arguments that have been presented to support IPO underpricing include:
I. counteracting the "winner's curse".
II. rewarding institutional investors for sharing their opinion of a stock's market value.
III. diminishing the risk to the underwriter who has agreed to a firm commitment underwriting.
IV. diminishing the odds that investors will sue investment banks.
- A. I and III only
B. II and IV only
C. I and II only
D. I, II, and III only
E. I, II, III, and IV
8. The weighted average cost of capital for a firm is dependent upon the firm's:
I. tax rate.
II. debt-equity ratio.
III. coupon rate on the preferred stock.
IV. level of risk.
- A. I and III only
B. II and IV only
C. I, II, and IV only
D. I, III, and IV only
E. I, II, III, and IV
9. Which of the following statements are correct concerning employee stock options (ESOs)?
I. ESOs grant the employee the right to buy company stock at a fixed price.
II. ESOs generally have a shorter life than call options.
III. Employees may lose their ESOs if they leave their job.
IV. ESOs are sometimes used as a substitute for cash wages.
- A. I and III only
B. II and IV only
C. I, III, and IV only
D. II, III, and IV only
E. I, II, III, and IV
10. Which of the following statements is correct concerning the beta of a portfolio?
I. Portfolio betas will always be greater than 1.0.
II. A portfolio beta is a weighted average of the betas of the individual securities contained in the portfolio.
III. A portfolio of U.S. Treasury bills will have a beta equal to minus one.
IV. If the portfolio beta is greater than one then the portfolio has more risk than the overall market.
- A. I and III only
B. II and IV only
C. I, II, and III only
D. II, III, and IV only
E. I, II, and IV only
11. Which of the following statements is correct concerning the financial break-even point of a project?
I. The present value of the cash inflows equals the amount of the initial investment.
II. The payback period of the project is equal to the life of the project.
III. The operating cash flow is at a level that produces a net present value of zero.
IV. The project never pays back on a discounted basis.
- A. I and II only
B. I and III only

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- C. II and IV only
D. III and IV only
E. I, III, and IV only
12. Which of the following methods of project analysis are biased towards short-term projects?
I. internal rate of return
II. accounting rate of return
III. payback
IV. discounted payback
A. I and II only
B. III and IV only
C. II and III only
D. I and IV only
E. II and IV only
13. Which of the following statements are correct concerning the term structure of interest rates?
I. The outlook for future inflation influences the shape of the term structure of interest rates.
II. The term structure of interest rates includes only the real rate of return and the inflation premium.
III. The interest rate risk premium is included in the term structure of interest rates.
IV. The term structure of interest rates can be downsloping.
A. I and II only
B. II and IV only
C. III and IV only
D. I, III, and IV only
E. I, II, and IV only
14. You are comparing two mutually exclusive projects. The crossover point is 9 percent. You determine that you should accept project A if the required return is 6 percent. This implies that you should:
I. reject project B if the required return is 6 percent.
II. always accept project A and always reject project B.
III. always reject project A any time the discount rate is greater than 9 percent.
IV. accept project A any time the discount rate is less than 9 percent.
A. I and II only
B. III and IV only
C. I, III, and IV only
D. I, II, and IV only
E. I, II, III, and IV
15. The three parts of the Du Pont identity can be generally described as:
I. operating efficiency, asset use efficiency and firm profitability.
II. financial leverage, operating efficiency and asset use efficiency.
III. the equity multiplier, the profit margin and the total asset turnover.
IV. the debt-equity ratio, the capital intensity ratio and the profit margin.
A. I and II only
B. II and III only
C. I and IV only
D. I and III only
E. III and IV only

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II、問答題及計算題：(第一題 28 分，第二題 12 分。)

一、西灣公司正考慮採購生產機器設備一批，今分別有 A 國之甲廠商、B 國之乙廠商以及 C 國之丙廠商，皆可提供品質與功能相當的器材。三家廠商的付款條件都採：簽約金 20%、半年之後付清 80% 餘款的方式。A, B, C 三國貨幣的即期匯率分別為 $A\$1=NT\10.0 、 $B\$1=NT\5.0 、 $C\$1=NT\2.0 ，機器設備報價則分別為 A\$100、B\$220、C\$450。在未來匯率變化難以預測之情況下，請制定較佳的採購決策程序。(若上列問題之資訊不足，請自行假設所需數值，以利作答。)

- (一) 請為西灣公司制訂決標時可據以排列採購優先順序的方法。
- 甲、若為買方市場，西灣公司可採行哪種策略？(7 分)
- 乙、若為賣方市場，西灣公司可採行哪種規則？(7 分)
- (二) 請制訂避險策略，以確保採購決策的正確性與合理性。
- 甲、西灣公司如何設定具有匯率避險機制之報價條件？(7 分)
- 乙、西灣公司如何於決標後進行匯率避險？(7 分)

二、東盈公司的資產負債表以及損益表如下表所示，若該公司銷貨欲提高 30%，請編製 Pro Forma 財務報表，並決定所需要之外來資金金額。假設固定資產現在之產能利用率為 90%。(12 分)

銷售額	\$	8,000
營運成本		7,000
利息費用		200
稅前盈餘	\$	800
所得稅 (25%)		200
淨利	\$	600
股息 (75%)	\$	450
增加之保留盈餘	\$	150

現金	\$	100	應付帳款	\$	100
應收帳款		200	應付費用		100
存貨		700	應付票據		200
流動資產合計	\$	1,000	流動負債合計	\$	400
固定資產		3,000	長期負債		1,000
			總負債	\$	1,400
			普通股		1,700
			保留盈餘		900
資產總額	\$	4,000	負債及權益合計	\$	4,000

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第一部分

*下列五道問題共有(1)~(20)個空格，請將最終答案按照空格序號直接書寫在答案卷上，其中，(1)~(10)每個空格 2 分，(11)~(20)每個空格 3 分，合計 50 分。

一、投擲一對公正骰子的隨機實驗，令隨機變數 X 表骰子出現的點數和，則 $E(X)=$ (1) ，
 $Var(X)=$ (2) 。

二、若二隨機變數 X 、 Y 的 joint p.d.f. 為 $f(x, y) = x + y, 0 < x < 1, 0 < y < 1$ ，則共變異數
 $cov(X, Y) =$ (3) ，相關係數 $\rho(X, Y) =$ (4) 。

三、設 (X_1, X_2, \dots, X_n) 是從常態分配 $N(X; \mu, 9)$ 母體抽出之一組隨機樣本，分別取下列統計
量：A. $\bar{X} = \frac{1}{n} \sum_{i=1}^n X_i$ B. $X^* = \frac{1}{2}(X_1 + X_2)$ C. $Y = \sum_{i=1}^n \left(\frac{X_i - \bar{X}}{3} \right)^2$ ，則： $E(\bar{X}) =$
(5) ， $Var(\bar{X}) =$ (6) ， $E(X^*) =$ (7) ， $Var(X^*) =$ (8) ， $E(Y) =$ (9) ， $Var(Y) =$
(10) 。

四、已知中山財管系同學課堂外花在研習統計學之時間每天平均為 102 分鐘，變異數為 36
分鐘，假設每天研讀之時間分配為常態分配，而且，一週之讀書日以 6 天計，則該系
同學每週總讀書時間花在統計學之時間超過 21 小時之機率為 (11) 。

五、設有一美元資產價格為 P^* (貨幣衡量單位為 USD)，若以新台幣計算 (即貨幣衡量單
位為 TWD)，該美元資產的價值為 $P = P^* \cdot e$ ， $e \equiv TWD/USD$ ，表示即期匯率。假定
 (P, e) 的聯合機率分配為常態分配，而我們欲研究 e 與 P 變動的因果關係，如此，典型
的迴歸理論告訴我們，此一模型應設定成 $E(P|e) = \beta_0 + \beta_1 e$ ，該式左端的 $E(\bullet|\bullet)$ 表示條
件期望值，右端的 (β_0, β_1) 為待決定之迴歸參數。不過，我們經常看到的迴歸模型都被
寫成： $P = \beta_0 + \beta_1 e + \varepsilon$ ，該式的 ε 與 e 沒有任何關聯，並且， $E(\varepsilon) = 0$ ，利用此一式子，
可以導出欲聯立求解迴歸參數 (β_0, β_1) 的標準方程式(normal equations)體系，此一標準
方程體系可寫成：(12)，而之所以稱之為標準(normal)，乃是：(13)，根據此
一標準方程體系，欲聯立求解出 (β_0, β_1) 的必要條件為：(14)，所解出之 $\beta_0 =$
(15)， $\beta_1 =$ (16)，同時， β_0 的貨幣衡量單位為：(17)，而 β_1 的貨幣衡量單位
為：(18)。最後，就 β_1 的求解結果而言，倘若：(19)，則可以賣出遠期(forward)
美元的交易方式來規避匯率變動風險，但倘若：(20)，則應以買入遠期美元的
交易方式去規避匯率變動風險。

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第二部份(50分)

(8分) 1.

During wage negotiations, the management of a large textile manufacturer advanced the claim that 50 percent of the workers in the industry earn more than \$15,000 a year. The union claims that this estimate is wrong and that the correct proportion is 30 percent.

A random sample of 100 workers in the industry was taken. The sample showed that 40 percent of the workers earned less than \$15,000.

- (a) Test the null hypothesis under which the correct proportion is $p = 0.50$ against $H_1: p = 0.30$. Use $\alpha = 0.05$.
 (b) Calculate the power of the test.

note: $Z_{0.025} = 1.96$, $Z_{0.05} = 1.645$

(8分) 2.

The milk production of five cows was measured twice: once after they had been fed by a product we shall call Food 1, and once after they had been fed by a product we shall call Food 2. The results (in gallons) are as follows:

Cow	Food 1	Food 2
1	2	2.5
2	3	3.0
3	1	1.5
4	2	2.0
5	3	2.0

Assuming a normal distribution of the milk production and that the standard deviation is the same in both samples, construct a 99 percent confidence interval for the difference in the mean production, where μ_1 is the mean for Food 1 and μ_2 is the mean for Food 2.

note: $Z_{0.005} = 2.576$, $T_{0.005,8} = 3.3355$, $T_{0.05,8} = 1.86$, $T_{0.025,8} = 2.306$

(8分) 3.

A large company employing tens of thousands of employees is considering offering its employees low-cost life insurance rather than a pay raise. A sample of 190 administrators, production workers, and salespeople has shown the following distribution of preference for the plan:

Employees	Preference		
	Pay raise	Life insurance	Indifferent
Administrators	15	20	10
Production workers	18	30	15
Salespeople	25	45	12

Test the hypothesis that the preference for life insurance or pay raise is independent of the job classification; in other words, the preference of the administrators is the same as that of the production workers and the salespeople. Use $\alpha = 0.01$.

note: $\chi^2_{0.01,4} = 13.277$, $\chi^2_{0.01,9} = 21.666$

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(9 分) 4.

The Dow Jones Industrial Average is one of the most widely quoted stock market indexes. This index is based on a sample of 30 industrial stocks, the so-called Dow Jones Industrials (DJI), and the average is arrived at by adding up the prices of the 30 stocks and dividing the total by the so-called Dow Jones divisor to obtain an average stock price adjusted for past stock splits and stock dividends.

A similar method is used to calculate the earnings on the Dow Jones Industrial Average: the reported quarterly earnings per share for the 30 DJI stocks are added up and the sum is divided by the DJI divisor. The result reflects average earnings per share adjusted for the cumulative effect of stock splits and stock dividends. The following table gives the quarterly earnings on DJI average for the period 1975-81.

Quarter	1981	1980	1979	1978	1977	1976	1975
1st	31.40	29.66	33.35	22.04	21.91	23.12	16.91
2nd	35.49	30.18	34.55	29.66	27.52	25.85	17.04
3rd	23.26	28.85	33.67	26.40	16.18	23.50	18.37
4th	<u>23.56</u>	<u>33.17</u>	<u>22.89</u>	<u>34.69</u>	<u>23.49</u>	<u>24.25</u>	<u>23.34</u>
Total	113.71	121.86	124.46	112.79	89.10	96.72	75.66

Source: *Barron's*, August 2, 1982. Reprinted by permission of *Barron's*, © Dow Jones & Company, Inc., 1982. All rights reserved.

A glance at the earnings table reveals that second- and fourth-quarter earnings are often higher than first- and third-quarter earnings. This may be due to the effect of seasonal shopping patterns. Use one-way ANOVA to check whether a seasonal pattern is statistically significant.

note: $F_{0.05,3,6}=4.76$, $F_{0.05,6,3}=8.94$

(8 分) 5.

A realtor assesses the value of properties in Chicago. A sample of 10 property transactions showed the following prices and assessment values (in thousands of dollars):

Selling price (Y)	Assessed value (X)
\$60.5	\$55.0
70.5	65.0
85.0	80.0
90.4	85.0
25.3	22.0
120.8	115.0
190.4	170.0
250.1	240.0
60.9	55.0
80.0	75.0

- Compute the least-squares regression, using the selling price as the dependent variable and the assessed value as the independent variable.
- Use $\alpha = 0.05$ to test the null hypothesis $H_0: \beta_1 = 1$ against the alternative hypothesis $H_1: \beta_1 > 1$. What is your interpretation of the test results?
- Suppose the data were obtained in a period of rising real estate prices, and you know that the assessment values were obtained about one year before the actual sale. Would these facts lead you to change your interpretation of the regression results? Explain.
- Construct a 95 percent confidence interval for the mean response and a 95 percent prediction interval for an individual observation at $X = \$150$. Explain the meaning of these intervals. Which interval is wider? Why?

note: $T_{0.05,8}=1.86$, $T_{0.025,8}=2.306$, $T_{0.05,10}=1.812$, $T_{0.025,10}=2.228$

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(9 分) 6.

The inflation and unemployment rates in six Western countries in 1984 were as follows:

Country	Inflation	Unemployment
1	10.1%	2.1%
2	8.5	6.1
3	12.0	4.1
4	0.2	12.0
5	22.1	2.0
6	55.1	0.1

- (a) Calculate the Spearman (r_s) and Kendall (τ) rank correlation coefficients.
- (b) Test the null hypothesis that the Spearman rank correlation is equal to zero against the alternative hypothesis that it differs from zero. Use $\alpha = 0.10$.
- (c) Repeat part b for the Kendall rank correlation. What is the interpretation of the test results?

note: the critical value of the Spearman rank correlation with $n=6$ and significance level 0.01 is equal to 0.943. To solve part(c), you can use the information of $Z_{0.05}=1.645$