

國立中興大學101學年度碩士班招生考試試題

科目：經濟學

系所：財務金融學系

答案本上已註明題號，請將各題答案填入正確位置，不要寫計算過程。滿分一百分。 本科目試題共4頁
答案若寫在未註明題號之空白頁，視同未作答。未註明題號之空白頁可供計算用。

你可以中文或英文作答，也可使用非記憶式計算機（限用 $+$ ， $-$ ， $\times$ ， $\div$ ， $\sqrt{\quad}$ ，指數，對數，冪數及三角函數等功能）。

第一部分：共8小題，第(1)題7分，第(2)到(8)題每題6分。

Questions (1)–(3) Bob lives in Taipei and Chuck lives in Taichung. They both consume only housing and food. Let H be the size of the apartment rented, and F the amount of food consumed each month. The unit price of food is 1 in both cities. The unit (square meter) price of an apartment is \$1000 in Taichung, and \$2000 in Taipei. Bob's utility function is $U_B(H, F) = \sqrt{HF}$, and has a monthly income W_B . Chuck's utility function is $U_C(H, F) = F + 20000H - 500H^2$ and his monthly income is W_C . Both are maximizing their utilities.

- (1) Suppose $W_C \geq 30000$. At their optimal choices, to have one more square meter of H , Bob is willing to give up X units of food and Chuck is willing to give up Y units of food. What is the value of X/Y ?
- (2) Suppose Chuck's income is $W_C = 30000$. Company ABC locates in Taipei and wants to hire Chuck by paying him W_{tpe} . If Chuck accepts, his monthly income will be W_{tpe} and he will rent an apartment in Taipei. What is the amount of W_{tpe} that makes Chuck indifferent between ABC's offer and the current situation?
- (3) Suppose Bob's income is $W_B = 30000$. Company XYZ locates in Taichung and wants to hire Bob by paying him W_{tch} . If Bob accepts, his monthly income will be W_{tch} and he will rent an apartment in Taichung. What is the amount of W_{tch} that makes Bob indifferent between XYZ's offer and the current situation?

Questions (4)–(6) Mary is a rice farmer with the production function $Q = K\sqrt{L}$, where K is the size of land rented, and L the labor hours. The rental price of K is 1, and the wage rate of L is 1. The rice market is perfect competition and the unit price is P . Mary's profit is $\Pi = PQ - L - K$, and she maximizes her (expected) profit. Suppose Mary can only rent $K = 1$ if she wants to grow rice. If Mary decides not to grow rice, she will not rent any land and have no cost.

- (4) Suppose Mary rents $K = 1$ to grow rice. What is her profit as a function of P ?
- (5) Suppose price is uncertain when Mary rents the land. Mary knows that the unit price will be \$1 or 4 with equal probability. If Mary rents $K = 1$, her profit will depend on the price. What is her expected profit from renting $K = 1$ and growing rice?
- (6) Continue from the last question. Suppose a wholesaler offers Mary a contract that he will pay P_f per unit for Mary's rice, no matter what the final price is. What is the amount of P_f that makes Mary indifferent between accepting P_f and rejecting P_f ?

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Question (7)–(8) A monopolist producing x-Pad faces the market demand $X = 1 - P$, where X is the quantity demanded for x-Pad. The cost function is $C(X) = F + X$, where F is the fixed cost. There is an inventor who owns a patent that can lead to a new product named z-Pad that will replace the monopolist's x-Pad. If the monopolist purchases the patent, it will stop producing x-Pad and start selling z-Pad. The market demand for z-Pad is $Z = 2 - P$, where Z is the quantity demanded for z-Pad. The cost function of z-Pad is $C(Z) = F + Z$.

- (7) What is the maximal amount of money the monopolist is willing to pay to get the patent?
- (8) Suppose there is another firm GHI who cannot produce x-Pad but is interested in the patent as well. If GHI gets the patent, it will become the new monopolist. What is the maximal amount of money that firm GHI is willing to pay? Is this amount higher than the amount the monopolist is willing to pay?

第二部分：每小題 3 分，共 17 小題。第 (9) 到 第 (17) 題為選擇題，答案只寫 A, B, C, 或 D 即可，不要寫其他的文字。第 (18) 到 (25) 題為計算題，請寫下正確的數字，不要寫計算過程。

數學式中的英文字定義如下： Y is GDP, or output. C is consumption. I is investment. P is price level. M is money supply. N is employment. K is capital stock. r is the interest rate.

- (9) The currency deposit ratio is 0.2, the reserve deposit ratio is 0.2, in which the excess reserve deposit ratio is 0.1, if the central bank lowers the required reserve ratio to 0.05, then what statement is not correct? (A)The money multiplier will increase by 0.329 (B)If the original monetary base is 10 billion, then the monetary base will increase by 0.5 billion (C)If the original monetary base is 10 billion, then excess reserve will increase by 0.5 billion (D)If the original monetary base is 10 billion, then the money supply will increase by 3.29 billion (E)None.
- (10) If the Central Bank wants an expansionary monetary policy, it could: (A) reduce interest rates on savings and time deposits (B)reduce discount rate (C)sell government securities (D)All of the above.
- (11) Under an assumption of monetary neutrality, a change in the nominal money supply has: (A)no effect on the price level (B)a less than proportionate effect on the price level (C)a proportionate effect on the price level (D)a more than proportionate effect on the price level.
- (12) In the small open economy in equilibrium: (A)saving is fixed and investment is determined by the investment function and the world interest rate (B)investment is fixed and saving is fixed and investment is determined by the trade balance (C)investment is fixed and saving is determined by the trade balance (D) None of the above.
- (13) Endogenous growth theory attempts to: (A)replace the Solow model with a model on which money growth plays a key role (B)explain how societies can more easily reach the "Golden Rule." (C)show how population growth reduces capital and output (D)None of the above.

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(14) Given the following model:

$$Y = C + I$$

$$C = 100 + 0.7Y$$

$$I = 150 - 80r + 0.2Y$$

(A)The IS curve has a positive slope (B)The IS curve has a negative slope (C)The IS curve is horizontal (D)The IS curve is vertical.

(15) In the IS-LM model when M remains constant but P rises, in short-run equilibrium, in the usual case, the interest rate __ and output __. (A)rises; falls (B)rises; rises (C)falls; rises (D)falls; falls.

(16) There are several reasons why the aggregate demand curve is downward sloping. Which of the following correctly describes one of these explanations? (A)A rise in the price level raises interest rates and increases investment spending (B)A fall in the price level, holding foreign price and the exchange rate constant, increase net exports (C)A rise in the price level raises the purchasing power wealth and increases desired consumption (D)A rise in the price level lowers the interest rate and increases investment spending.

(17) If the demand for money increase, but the Fed keeps the money supply the same, then in the short run output will: (A)fall and in the long run prices will remain unchanged (B)remain unchanged and in the long run prices will fall (C)remain unchanged and in the long run prices will remain unchanged (D)fall and in the long run prices will fall.

(18) Suppose the economy's production function is $Y = AK^{0.3}N^{0.7}$, where A is the technology parameter. Suppose that when $K = 1000$ and $N = 50$, $Y = 2000$. Then what is the value of Y when $K = 2000$ and $N = 100$?

(19) An economy has full-employment output of 5000. Government purchases are 1000. Desired consumption and desired investment are given by:

$$C^d = 3000 - 2000r + 10Y,$$

$$I^d = 1000 - 4000r.$$

What is the interest rate that clears the goods market?

(20) For the economy of Lower Volta, the MP_N is given by:

$$MP_N = 400 - 0.2N.$$

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The aggregate quantity of labor supplied is $500 + 10(1 - \tau)w$ where τ is the income tax rate and $\bar{w}$ is the real wage rate. Assume that the income tax rate is 50%. What is the equilibrium before-tax wage rate?

(21) The Lucas aggregate supply curve is given by $Y = 475(P - P^e) + 1250$, where P^e is the expected price level. The aggregate demand curve is given by $Y = 750 + 0.625(M/P) + \epsilon$, where ϵ is a random shock. Assume that the expected value of ϵ is equal to zero. What is the rational expectation of P when the expected value of M equals the actual value of 800?

(22) The supply side of an economy is given by:

$$\text{Production function: } Y = 100 + 10N - \frac{N^2}{8}$$

$$\text{Labor supply: } N^s = 10 + 2\left(\frac{W}{P}\right)$$

where W is the nominal wage. Assume producers are profit maximizing and the total labor force in this economy is 30. What is the natural unemployment rate?

Questions (23)–(25) Consider the following misperceptions model of the economy:

$$\text{AD: } Y = 600 + 10(M/P)$$

$$\text{SRAS: } Y = \bar{Y} + P - P^e$$

$$\text{Okun's Law: } \frac{(Y - \bar{Y})}{Y} = -2.5(u - \bar{u})$$

where $\bar{Y}$ is the full employment output, u the unemployment rate, and $\bar{u}$ the natural unemployment rate.

(23) What is the price level?

(24) Suppose there is an unanticipated increase in the nominal money supply to 800. What is the short-run equilibrium level of output?

(25) When price expectations adjust fully, what is the price level?