

國立中山大學 101 學年度碩士暨碩士專班招生考試試題

題號：4012

科目：總體經濟學【經濟所碩士班】

共 5 頁 第 1 頁

總體經濟

Part I (50%，單選題，每題 2.5 分，共 50 分)

1. Over time, the wealth of society increases and payments technologies get more efficient. What is the effect on money demand of these two changes?
 - a. the overall effect is ambiguous
 - b. money demand rises proportionately to the rise in wealth
 - c. money demand rises, but less than proportionately to the rise in wealth
 - d. money demand declines
2. Which of the following statements about M1 and M2 is true?
 - a. demand deposits are not part of M1.
 - b. Savings deposits are part of M2.
 - c. M1 is larger than M2
 - d. M2 is more liquid than M1.
3. The opportunity cost of holding currency decreases when
 - a. the interest rate on bonds decreases
 - b. income decreases
 - c. the interest rate on money decreases
 - d. wealth decreases
4. Under a situation of asset market equilibrium,
 - a. the quantity of money supplied equals the quantity of money demanded.
 - b. The quantity of nonmonetary assets supplied equals the quantity of monetary assets demanded.
 - c. The quantity of money supplied equals the quantity of nonmonetary assets supplied.
 - d. The quantity of money supplied equals the quantity of nonmonetary assets demanded.
5. One of the first organizations to investigate the business cycle was
 - a. the Federal Reserve System.
 - B. the National Bureau of Economic Research
 - c. the Brookings Institution
 - d. the Council of Economic Advisors
6. The tendency of many different economic variables to have regular and predictable patterns across industries over the business cycle is called
 - a. comovement
 - b. persistence
 - c. recurrence
 - d. periodicity
7. An adverse supply shock would cause the FE line to
 - a. remain unchanged
 - b. shift to the right
 - c. shift to the left
 - d. remain changed if the shock is temporary; shift to the right if the shock is permanent.
8. Any change that reduces desired saving relative to desired investment (for a given level of output) causes the real interest rate to _____ and shifts the IS curve _____.
 - a. decrease; down
 - b. decrease; up
 - c. increase; down
 - d. increase; up
9. AAA company stock has a higher expected rate of return than ZZZ company stock. All else being equal, you would expect that relative to ZZZ, AAA company stock provides
 - a. less risk and less liquidity
 - b. less risk and more liquidity
 - c. more risk and less liquidity
 - d. more risk and more liquidity

國立中山大學 101 學年度碩士暨碩士專班招生考試試題

題號：4012

科目：總體經濟學【經濟所碩士班】

共 5 頁 第 2 頁

10. Which of the following is most likely to lead to an increase of 1% in the nominal demand for money?
- a. an increase in real income of 0.5%
 - b. a decrease in real income of 0.5%
 - c. a decline of 1% in the price level
 - d. an increase of 1% in the price level
11. Suppose the economy's production function is $Y = AK^{0.3}N^{0.7}$. If $K=2000$, $N=100$, and $A=1$, then $Y=246$. If A rises by 10%, and K and N are unchanged, by how much does Y increase?
- a. 5%
 - b. 20%
 - c. 10%
 - d. 15%
12. When a person gets an increase in current income, what is likely to happen to consumption and saving?
- a. consumption decreases and saving decreases
 - b. consumption increases and saving decreases
 - c. consumption decreases and saving increases
 - d. consumption increases and saving increases
13. The fraction of additional current income that a person consumes in the current period is known as the
- a. saving rate
 - b. consumption-smoothing motive
 - c. marginal propensity to consume
 - d. consumption deficit
14. If the marginal product of capital does not change as the amount of capital increases, a figure showing the relationship between output and capital
- a. is a vertical line
 - b. is a straight line with a slope of zero
 - c. is a straight line with constant upward slope
 - d. slopes upward with a slope that declines as the amount of capital increases.
15. Which of the following represents the basis of the new classical theory?
- a. individuals are motivated by self-interest
 - b. wages are perfectly flexible
 - c. prices are perfectly flexible
 - d. all of the above
16. Nominal wage contracts tend to exist because:
- a. firms would not prefer to pay lower nominal wages if consumers demand fewer of the goods and services the firm produces
 - b. workers would not prefer to earn higher nominal wages if the demand for their skills increases
 - c. contracts can minimize the labor-market transaction costs associated with an auction market for labor skills
 - d. all of the above
17. Assume workers and firms correctly anticipate the price level and that wages are set based on the modern Keynesian theory of contracts. In this case employment will be:
- a. greater than the full-information value of employment
 - b. less than the full-information value of employment
 - c. equal to the market clearing value of employment
 - d. less than the level of employment that occurs in the classical labor auction market

國立中山大學 101 學年度碩士暨碩士專班招生考試試題

題號：4012

科目：總體經濟學【經濟所碩士班】

共 5 頁 第 3 頁

18. The Great Depression remains an event of considerable interest to economists. Which of the following represents the great puzzle posed by the Great Depression?
- the short-run effects of the drop in aggregate demand on output
 - the short-run effects of the drop in aggregate demand on the price level
 - the effects of the drop in the nominal money stock on aggregate demand
 - none of the above
19. Price inertia refers to:
- the effects of the nominal money stock on the price level
 - the rigidity of the real wage
 - the persistence of any drop in output
 - the sluggishness of price adjustments
20. One of the problems with small-menu-cost models is that:
- the theory assumes that firms attempt to maximize profits for just one period
 - the models only focus on the costs of changing prices
 - the models do not consider the costs of changing production
 - all of the above
21. Assume that: banks do not hold excess reserves; individuals do not hold currency; and the required reserve ratio is 10% ($q = .10$). For this economy, a Fed purchase of \$50 million of government securities will eventually cause the money supply to:
- increase by \$500 million
 - increase by \$5 million
 - decrease by \$500 million
 - decrease by \$5 million
22. Use your understanding of the IS-LM-BP model to answer this question. Assume at the initial equilibrium that output is below the target level of output and that a private payment deficit exists. Given this information, we know with certainty that which of the following policy actions will simultaneously achieve both internal and external balance?
- more information is needed to answer this question
 - reduction in the nominal money supply
 - increase in government expenditures
 - reduction in government expenditures
23. Which of the following represents the response lag?
- the amount of time between the realization of the need for a macroeconomic policy action and the actual implementation of that policy
 - the total amount of time between the need for a macroeconomic policy action and when the subsequent policy action has its macroeconomic effects
 - the amount of time between the implementation of a policy action and when the macroeconomy responds to that policy action
 - none of the above
24. Which of the following does NOT represent one of the three types of foreign exchange risk?
- the effects of changes in the exchange rate on net exports
 - the effects of changes in the exchange rate on the value of a financial asset relating to the funding of a foreign-currency-denominated transaction

國立中山大學 101 學年度碩士暨碩士專班招生考試試題

題號：4012

科目：總體經濟學【經濟所碩士班】

共 5 頁 第 4 頁

- c. the effects of changes in the exchange rate on the underlying rates of return on financial assets denominated in other currencies
- d. the effects of changes in the exchange rate on the market value of an individual's foreign asset holdings

25. Which of the following would contribute to the development of an optimal-currency area?

- a. obstacles to the flow of labor across borders
- b. the existence of different languages
- c. obstacles to the flow of capital across borders
- d. all of the above

Part II (50% , 計算與問答 , 共 50 分)

1. (20%) Please consider the following consumption choice model:

$$\text{Max } U = \sum_{t=1}^{\infty} (1/(1+\rho))^{t-1} U(c_t)$$

$$\text{S.T. } k_t(1+r_t) + w_t = k_{t+1} + c_t$$

Where, ρ , c_t , k_t , w_t and r_t are the time preference rate, per-capita consumption, per-capita capital, real wage and rental price of capital, respectively. U is the utility function.

- (1) please give an **economic** explanation of the constraint. (please be brief) (5%)
- (2) Please find the first order condition for the optimal consumption path as follows: (7%)

$$\frac{U'(c_t)}{U'(c_{t+1})} = \frac{1+r_t}{1+\rho}$$

- (3) Please provide an **economic interpretation** of the previous Keynes-Ramsey rule. (please be brief) (8%)

2. (20%) Consider the following assumptions

- (a) Money demand is a linear function of real income (y) and nominal interest rate (r). real money supply is exogenous. Domestic and foreign country has the same income elasticity of money demand and semi-interest elasticity of money demand [please note that all variables are in log form except interest rates and this is the reason why I said semi-interest elasticity of money demand]
- (b) Domestic money market is in equilibrium
- (c) foreign money market is in equilibrium
- (d) purchasing power parity hold.
- (e) uncovered interest parity hold.

Let e : nominal exchange rates (**domestic currency per foreign currency**)

p : domestic nominal price level, p^* : foreign nominal price level.

y : domestic real income, y^* : foreign real income,

國立中山大學 101 學年度碩士暨碩士專班招生考試試題

題號：4012

科目：總體經濟學【經濟所碩士班】

共 5 頁 第 5 頁

r : domestic nominal interest rates, r^* : foreign nominal interest rates,
 m : domestic money supply m^* : foreign money supply,
 α : domestic (foreign) income elasticity of money demand
 β : domestic (foreign) semi-interest elasticity of money demand.

- (1) Please set up a theoretical model based on the above assumptions (a) – (d). (5%)
 - (2) Please solve the model in (1) for the nominal exchange rate (e). (5%)
 - (3) Please set up a theoretical model based on the above assumptions (a) – (e). (5%)
 - (4) Please derive the nominal exchange rate, based on the model in (3), in terms of relative income and relative money supply and expected nominal exchange rate changes. (here “relative” means the deviation between domestic and foreign variables. In addition, you do not need to solve for the reduced form of the nominal exchange rate). (5%)
3. (5%) Please describe the golden rule condition in economic growth and provide its economic interpretation briefly.
4. (5%) Please write down a Taylor-rule equation in monetary economics and provide its economic interpretation briefly.

國立中山大學 101 學年度碩士暨碩士專班招生考試試題

科目：個體經濟學【經濟所碩士班】

題號：4010

共 2 頁 第 1 頁

1. (10pts, multiple selection) An insurance company is considering issuing three types of fire insurance policies: (i) complete insurance coverage, (ii) complete coverage above and beyond a \$100,000 deductible, and (iii) 90 percent coverage of all losses. Which of the following statements are true?
 - (a) Policies (ii) and (iii) both reduce the moral hazard problem of complete coverage;
 - (b) Only policy (iii) can reduce the moral hazard problem of complete coverage;
 - (c) If the property is worth more than one million, the owner is more likely to engage in fire prevention efforts under policy (ii) than under policy (iii);
 - (d) Moral hazard problems arise with fire insurance when the insured party can influence the probability of a fire.
 - (e) A consumer who is risk averse will buy a complete insurance contract.

2. (10pts, multiple selection) Consider the following bargaining game. Player A moves first and makes player B an offer for the division of \$100. (For example, Player A could suggest that she take \$60 and Player B take \$40.) Player B can accept or reject the offer. If he rejects it, the amount of money available drops to \$90, and he then makes an offer for the division of this amount. If Player A rejects the offer, the amount of money available drops to \$80 and Player A makes an offer for this division. If player B rejects this offer, the amount of money drops to \$0. Both players are rational, fully informed, and completely patient. Which of the following statements hold true?
 - (a) Player B will end up with \$0 in equilibrium;
 - (b) Player B will get no more than \$50 in equilibrium;
 - (c) Both players will get \$50 in equilibrium;
 - (d) Player A enjoys the first mover advantage;
 - (e) Player B enjoys the last mover advantage.

3. (10pts, multiple selection) Which of the following situations do not satisfy the criterion of Pareto efficiency?
 - (a) Price competition equilibrium in duopoly of a homogeneous good;
 - (b) The first degree price discrimination in monopoly;
 - (c) Cournot-Nash equilibrium;
 - (d) Perfect competition;
 - (e) Economies of scale.

4. (10pts) There are three groups in a community. Their demand curves for public television in hours of programming, Q , are given respectively by $P_1=200-Q$, $P_2=120-Q$, and $P_3=180-Q$. Suppose public television is a pure public good that can be produced at a constant marginal cost of 100 per hour.
 - (a) What is the efficient number of hours of public television?
 - (b) How much public television would a competitive private market provide?

國立中山大學 101 學年度碩士暨碩士專班招生考試試題

科目：個體經濟學【經濟所碩士班】

題號：4010
共 2 頁 第 2 頁

5. (10pts) Find the equilibrium of the game below.

		Player 2	
		L	R
Player 1	U	3, 2	-1, 3
	D	-1, 1	0, 0

Figure 1 The game between player 1 and player 2

6. (5pts) Please identify the reason why we sometimes have a backward bending labor supply curve.
7. (15pts) Suppose that we know the price elasticity of demand for the bicycles in market A is -2 and -4 in market B. The trade is not allowed between these two countries. If there is a monopolist producing bicycles and it differentiates the prices, P_A and P_B , in these two markets, what is P_A/P_B ? What degree of price differentiation is this?
8. (10pts) Use the demand-supply diagram to illustrate the short-run and long-run effect of a binding rent control over the housing market.
9. (20pts) Use the graphs to compare the long-run equilibria in the markets of perfect competition and monopolistic competition, respectively. Which one has a higher equilibrium price? Which one has a higher equilibrium quantity? Also indicate the excess profits in these two graphs, if any. Finally, indicate the deadweight loss in these two graphs, if any.

國立中山大學 101 學年度碩士暨碩士專班招生考試試題

科目：統計學【經濟所碩士班】

題號：4011

共 1 頁 第 1 頁

請依序作答，否則該題不計分

5 題 共 100 分

1 (20 %)

Let X and Y be independent, and let $f_1(x)=e^{-x}$, $x>0$, $f_2(y)=e^{-y}$, $y>0$. Suppose $U=Y/X$, $V=X$. Find the marginal density of U .

2. (20 %)

Let X and Y have joint density $f(x,y)=y/10$, $(x,y)=(1,1), (1,2), (1,3), (2,1), (2,2), (3,1)$. Find $\text{Var}(Y|x=1)$.

3. (20 %)

Let X_1, \dots, X_n be independent, $n \geq 2$, and $X_i \sim N(\mu, \sigma^2)$, where (μ, σ^2) are unknown parameters. Find maximum likelihood estimator (MLE) of (μ/σ) .

4. (20 %)

Let V_i be independent, $V_i \sim N(\mu, \sigma^2)$ and $U_n = V_1 + \dots + V_n$. Find the probability limit of (U_n/n) as n tends to infinity, i.e., $\text{plim}(U_n/n) = ?$

5. (20 %)

Two diets are compared. Suppose that 35 men on the first diet had a sample mean weight loss of 20 pounds with a sample standard deviation of 4 pounds, while 60 men on the second diet had a sample mean weight loss of 17.5 pounds with a sample standard deviation of 8 pounds.

Do a two sample test to test the null hypothesis that there was no significant difference in the mean weight losses for the mean on the two diets. Use a 0.05 test. (If Z is a standard normal distribution, then $\text{Prob}(Z \leq z) = 0.95$, when $z = 1.64$ and $\text{Prob}(Z \leq z) = 0.975$, when $z = 1.96$.)