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| 考試科目 | 經濟學 | 系所別 | 商學院共同科 | 考試時間 | 2 月 3 日 (五) 第二節 |
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### I. Multiple Choice (1 point each)

Identify the letter of the choice that best completes the statement or answers the question.

1. John has an income of  $\$m$  per week. He consumes only two commodities,  $x$  and  $y$ . Let  $p_x$  be the price of  $x$  and  $p_y$  be the price of  $y$ . If he consumes more than  $\bar{X}$  units of  $x$  per week, he can use coupons to buy the next  $Z$  units of  $x$  at a price of  $p_x(1-s)$ . If he buys more than  $\bar{X} + Z$ , he has to pay the full price  $p_x$  for additional units. His weekly income is greater than  $p_x[\bar{X} + (1-s)Z]$ . The maximum amount of  $x$  that he can buy per week is

- A.  $\bar{X} + \frac{mZ}{p_x}$ .
- B.  $\frac{m+\bar{X}}{p_x} + Z$ .
- C.  $\frac{m}{p_x} + sZ$ .
- D.  $Z - \frac{(m+p_x)}{1-s} p_x$ .

2. Professor Lin gives 3 midterm exams. Only the highest one counts. You are taking his course and have a 60 on your first exam. Let  $x_2$  be your score on the second exam and  $x_3$  be your score on the third exam. If you draw your indifference curves for scores on the second and third exams with  $x_2$  represented by the horizontal axis and  $x_3$  represented by the vertical axis, then your indifference curve through the point  $(x_2, x_3) = (50, 70)$  is

- A. 7-shaped with a kink where  $x_2 = x_3$ .
- B. three line segments, one vertical, one horizontal, and one running from  $(70, 60)$  to  $(60, 70)$ .
- C. a straight line, running from  $(0, 70)$  to  $(70, 0)$ .
- D. an L-shaped curve with its point at  $(50, 70)$ .

3. Consider the utility function to be  $\min\{x, yz\}$ . The price of  $x$  is  $\$1$ , the price of  $y$  is  $\$4$ , and the price of  $z$  is  $\$4$ . Henri's income is  $\$20$ . How many units of  $x$  does Henri demand?

- A. 5
- B. 20/9
- C. 2
- D. 3

4. Suppose that the production function is  $f(x_1, x_2) = (x_1^a + x_2^a)^b + c$ , where  $a$ ,  $b$ , and  $c$  are positive constants. For what values of  $a$ ,  $b$ , and  $c$  does the firm have constant returns to scale?

- A. For any values of  $a$  if  $b < 1$  and  $c = 0$ .
- B. For any values of  $a$  and  $c$  if  $ab < 1$ .
- C. For any values of  $a$  and  $c$  if  $ab = 1$ .
- D. For any value of  $c$  if  $a < 1$  and  $b < 1$ .

備註

- 一、作答於試題上者，不予計分。
- 二、試題請隨卷繳交。

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5. Roommate 1's utility function is  $3X_1 + G$  and Roommate 2's utility function is  $X_2G$ , where  $G$  is their expenditures on the public goods they share in their apartment and where  $X_1$  and  $X_2$  are their respective private consumption expenditures. The total amount they have to spend on private goods and public goods is \$30,000. They agree on a Pareto optimal pattern of expenditures in which the amount that is spent on Roommates 1's private consumption is \$5,000. How much do they spend on public goods?

- A. \$1,000
- B. \$15,000
- C. \$7,999
- D. \$18,000

6. Consider a monopolistically competitive market in an economy moves from autarky to free trade. Which of the following statements is (are) correct?

- (i) The domestic demand curve for a domestic firm will shift to the right.
  - (ii) The price elasticity of domestic demand that a domestic firm faces will increase in the absolute value.
  - (iii) The domestic firm's markup will decrease.
- A. Only (i)
  - B. (i) and (ii)
  - C. (ii) and (iii)
  - D. (i) and (iii)

7. Which of the following curves is not affected by the existence of diminishing marginal product of input factors?

- A. The average fixed cost curve.
- B. The average variable cost curve.
- C. The marginal cost curve.
- D. The variable cost curve.

8. Suppose the shutdown point of a firm in a perfectly competitive market is that the market price is \$10. At the shutdown point, the average total cost of the firm is \$20. What is the average fixed cost?

- A. 5
- B. 10
- C. 15
- D. Need more information.

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9. The information in the table below shows the total demand for gasoline in a small urban market. Assume that each gasoline provider pays a fixed cost of \$100,000 (per year) to operate in the market area and that the marginal cost of providing the gasoline to a household is zero.

| Quantity | Quantity (per year) |
|----------|---------------------|
| 0        | 120                 |
| 3000     | 90                  |
| 4000     | 80                  |
| 5000     | 70                  |
| 6000     | 60                  |
| 7000     | 40                  |
| 8000     | 30                  |

Assume any agreement between two firms are not enforceable and two firms compete in quantity. What is the market price under the Nash equilibrium according to the table?

- A. 80
- B. 70
- C. 60
- D. 40

10. In a monopolistically competitive market, if the long run marginal cost curve intersects the long run marginal revenue cost curve and long run average cost curve when the marginal cost is \$10 and \$20 respectively, which of the following choices is a possible long run equilibrium market price?

- A. 5
- B. 10
- C. 15
- D. 21

11. How would a decrease in the frictional unemployment affect the long-run Phillips curve?

- A. It would shift the long-run Phillips curve right.
- B. It would shift the long-run Phillips curve left.
- C. There would be an upward movement along a given long-run Phillips curve.
- D. There would be a downward movement along a given long-run Philips curve.

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12. In the United States, the CPI was 80 in 1980 and is 300 today, then \$100 today purchases the same amount of goods and services as
- \$26.67 purchased in 1980.
  - \$33.33 purchased in 1980.
  - \$40.00 purchased in 1980.
  - \$80.00 purchased in 1980.
13. If total spending rises from one year to the next, then which of the following could not be true?
- the economy is producing a smaller output of goods and services, and goods and services are selling at higher prices.
  - the economy is producing a larger output of goods and services, and goods and services are selling at lower prices.
  - the economy is producing a larger output of goods and services, and goods and services are selling at higher prices.
  - the economy is producing a smaller output of goods and services, and goods and services are selling at lower prices.
14. You put money into an account that earns a 3 percent real interest rate. The inflation rate is 2 percent, and the tax rate on your interest income is 20 percent. What is your after-tax real rate of interest?
- 2.0 percent.
  - 2.4 percent.
  - 3.0 percent.
  - 3.6 percent.
15. Time inconsistency will cause the
- short-run Phillips curve to be higher than otherwise.
  - short-run Phillips curve to be lower than otherwise.
  - long-run Phillips curve to be farther to the right than otherwise.
  - long-run Phillips curve to be farther left than otherwise.
16. Which of the following policies should be used to close an inflationary GDP gap?
- A decrease in government purchases.
  - An increase in taxes.
  - A decrease in money supply.
  - All of the above.

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17. If a country has a current account balance of -\$120 and a capital and financial account balance of \$80, there will be \_\_\_\_\_ in official reserves of \_\_\_\_\_ .

- A. an increase; \$40.
- B. an increase; \$200
- C. a decrease; \$40
- D. a decrease; \$200

18. When the central bank in a country decreases the money supply, its

- A. price level rises and its currency appreciates relative to other currencies in the world.
- B. price level falls and its currency appreciates relative to other currencies in the world.
- C. price level falls and its currency depreciates relative to other currencies in the world.
- D. price level rises and its currency depreciates relative to other currencies in the world.

19. The Ricardo-Barro effect states that government deficits

- A. increase the equilibrium real interest rate, crowding out investment.
- B. decrease private saving, the equilibrium real interest rate and investment.
- C. increase private saving and have no effect on the equilibrium real interest rate and investment.
- D. decrease the equilibrium real interest rate and increase investment.

20. Suppose potential GDP exceeds real GDP in a short-run macroeconomic equilibrium. If aggregate demand does not change, then the

- A. short-run aggregate supply curve will shift rightward as the money wage rate decreases.
- B. short-run aggregate supply curve will shift leftward as the money wage rate increases.
- C. long-run aggregate supply curve will shift leftward as the money wage rate increases.
- D. long-run aggregate supply curve will shift leftward as the money wage rate decreases.

## II. Problems and Short-essay Questions

1. Consider the following utility function.

$$u(x_1, x_2) = \begin{cases} 3x_1 + x_2 & \text{if } x_1 > 2x_2, \\ \frac{7}{5}x_1 + \frac{21}{5}x_2 & \text{otherwise.} \end{cases}$$

- A. (7 points) Calculate the marginal rate of substitution.
- B. (6 points) (9,1) and (c,6) sit on the same indifference curve. What is the value of c?
- C. (7 points) Let  $m$  stand for the consumer's income. Please calculate the demand function as a function of  $p_1$ ,  $p_2$ , and  $m$ .

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2. Suppose Firm A is the only seller of Product A in a closed economy. The firm faces the following demand, marginal revenue, and marginal cost curves.

$$\text{Demand: } P = 70 - Q$$

$$\text{Marginal Revenue: } MR = 70 - 2Q$$

$$\text{Marginal Cost: } MC = 10 + Q$$

$$\text{Total cost: } TC = 210 + 10Q + 0.5Q^2$$

A. (4 points) Please calculate the efficient loss due to the monopoly.

Suppose the government of the economy decides to open the market to the world. The world price of Product A is \$30.

B. (4 points) How many units of Product A will the economy export or import in the short run?

C. (4 points) How many units of Product A will the economy export or import in the long run?

D. (8 points) In the long run, if the government wants to maintain that both the domestic producer and foreign importers coexist in the domestic market, the government should tax or subsidize the importers? What is the minimum value of the per-unit tax or the per-unit subsidy to achieve this goal?

3. Consider an economy where the representative consumer has a utility function  $U = CF$  over clothing  $C$  and food  $F$ , and has an income of \$40.

A. (8 points) Suppose in year one (the base year), the prices of clothing and food are  $p_C^1 = 2$  and  $p_F^1 = 2$ , respectively. What is the consumer's optimal consumption bundle? How much utility does the consumer receive from this bundle?

B. (6 points) Suppose in year two, the prices of clothing and food become  $p_C^2 = 2.5$  and  $p_F^2 = 10$ , and the consumer's income increases in proportion to the consumer price index (CPI). What is the consumer's optimal consumption bundle?

C. (6 points) What is the minimum income in year two that enables the consumer to achieve the same level of utility as in year one? How much does the CPI overstate actual inflation due to the *substitution bias*?

4. In an economy, autonomous consumption expenditure is \$100 billion, investment is \$300 billion, and government expenditure is \$150 billion. The marginal propensity to consume is 0.90 and net taxes are \$150 billion. Exports are \$450 billion and imports are \$550 billion. Assume that net taxes and imports are autonomous and the price level is fixed.

A. (5 points) What is the value of consumption multiplier?

B. (10 points) Calculate the equilibrium aggregate expenditure.

C. (5 points) If government expenditure increases by \$200 million, what is the change in the economy's equilibrium real GDP?

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