

國立清華大學命題紙

96學年度 經濟學 系(所) 組碩士班入學考試

科目 個體經濟學 科目代碼 4701 共 2 頁第 1 頁 *請在【答案卷卡】內作答

I. Indicate whether you consider each of the following statements to be **TRUE** or **FALSE**. In each case give a brief explanation of your answer. **Your grade will depend heavily on your explanation.** (8 points for questions 1-5, 10 points for question 6)

- When the opportunity cost of running a competitive firm increases, the welfare of the firm's owner decreases.
- If $x = f(K, L)$ is a constant returns to scale production function, then the marginal and average products of both K and L depend only on the ratio of the two inputs (K/L), not the absolute values of K and L .
- A poor man consumes 5 units of chicken a month; his expenditure on all other things is denoted as y . Recently the price of chicken has risen from $p = \text{NT\$}100$ to $p = \text{NT\$}120$. To help him weather through this difficult time, one of his neighbors promises to give him extra $\text{NT\$}100$ a month. Then the poor man will be exactly as well off as before the price increase.
- Generally speaking, the market demand of a commodity depends on income distribution among the consumers of this commodity. However, if all the consumers have identical preferences and their income consumption curve is a straight line from the origin, then the market demand is independent of income distribution among them.
- Figure 1 depicts two supply curves, S_1 and S_2 , of good x . The dotted straight line OA is tangent to S_1 at point A , and B is a point on S_2 . Then the elasticity of supply at point A is equal to that of point B .
- In figure 2, point A on $SRMC$ curve is the minimum point of an average variable cost (AVC) curve while point B on $LRMC$ is the minimum point of the long run average cost ($LRAC$) curve. Then, the area F represents the firm's fixed cost in the short run.

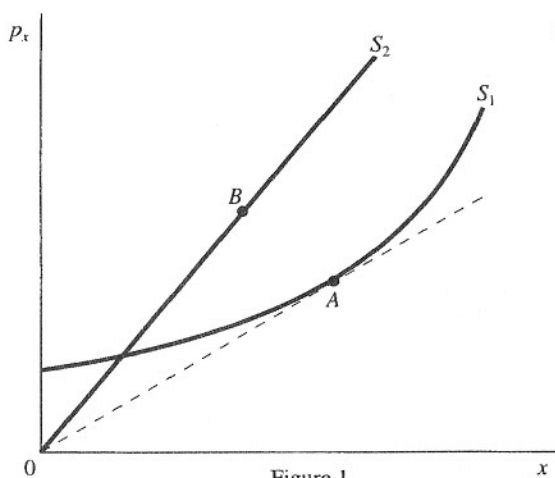


Figure 1

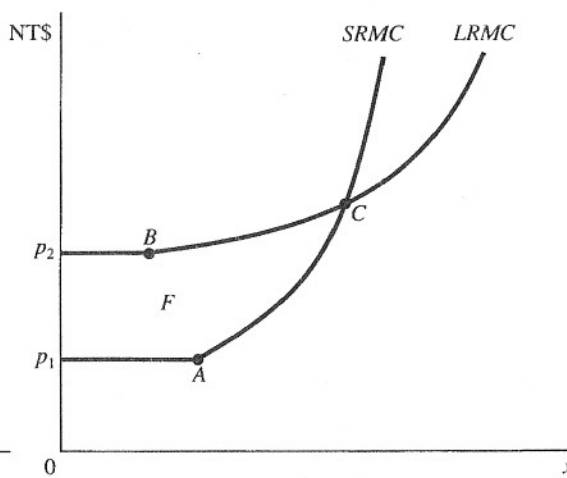


Figure 2

國立清華大學 命題紙

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科目 個體經濟學 科目代碼 4701 共 2 頁第 2 頁 *請在【答案卷卡】內作答

II. In a duopoly market, two firms produce homogeneous product. Both firms have identical constant marginal and average costs which is equal to \$20. The market demand curve is given by

$$x = 100 - 2p$$

where x is the quantity demanded and p is the price of the product.

1. If the output is the decision for both firms, find the Nash equilibrium for the model. (explain your answer, otherwise no credit will be given.) (10 points)
2. If the price is the decision for both firms, find the Nash equilibrium for the model. (explain your answer, otherwise no credit will be given.) (10 points)
3. Perform the normative analysis for the models in parts a and b . (5 points)

III. In a two-person economy with production, consumers A and B endow with 100 and 60 units of labor respectively. Their utility functions are given by

$$U^A(x_A, y_A) = x_A y_A$$

$$U^B(x_B, y_B) = x_B y_B^2$$

The production function of goods X and Y are

$$x = L_x$$

$$y = 2L_y$$

where L_x is the labor input in X production, L_y is the labor input for Y production.

1. Find the general competitive equilibrium price for input and outputs. Also find the equilibrium levels of consumption for both consumers. (10 points)
2. Find the Pareto efficient allocations for outputs. (10 points)
3. Using the results in parts a and b to verify the first fundamental theorem of welfare economics. (5 points)