

編號: 570 系所: 經濟學系科目: 個體經濟學

本試題是否可以使用計算機:  可使用,  不可使用 (請命題老師勾選)

1. Suppose that a firm's production function is given by the function  $q = \min\{aL, bK\}$ , and that the firm can purchase all the  $K$  and  $L$  it wants in the competitive input markets at rental rates of  $r$  and  $w$ .
  - a. Suppose that capital stock is fixed at  $\bar{K}$  in the short run. Find the short-run total cost function in terms of output level,  $q$ . (7%)
  - b. Find the long-run total cost function in terms of output level,  $q$ . (8%)
  - c. Graphically show that for this particular production function, the long-run total cost curve is an envelope of its respective short-run curves. (10%)
2. Assume that the utility is given by  $U(x, y) = x^a y^b$ .
  - a. Find the uncompensated (Marshallian) demand for good  $x$  and  $y$ . (8%)
  - b. Find the marginal utility of income. (7%)
  - c. Find the compensated (Hicksian) demand for good  $x$  and  $y$ . (10%)
3. Suppose that the market demand for a duopoly market is  $Q(P) = a - bP$ , where  $a$  and  $b$  are constant. Both firms have constant average (and marginal) costs,  $c$ .
  - a. Let the firms engage in a Cournot competition, solve for the equilibrium output. (10%)
  - b. Show that the equilibrium in part (a) is a Nash equilibrium. (10%)
  - c. Now, consider the case that the two firms engage in a Stackelberg competition, and let one of the firms be the leader. Can the leader ever get a lower profit in the Stackelberg equilibrium than he would get in the Cournot equilibrium? Draw a graph and explain carefully. (10%)
4. Consider a consumer, who is initially a lender.
  - a. If the consumer remains a lender after a decline in interest rates, is he better off or worse off after the change in interest rates? Why? Graphically show your answer. (10%)
  - b. If the consumer becomes a borrower after the change, is he better off or worse off? Why? Graphically show your answer. (10%)