

# The Cooperative University of Kenya



## HBC 2205/HCOB 2206/CMFI 2203: Intermediate Microeconomics

### Instructions

Answer question One and any other two questions

### Question One

- Discuss the central economic problem using scarcity and opportunity cost concepts (4 marks)
- A single commodity market model is represented by the following equations;

$$\text{Demand function: } P = - Q^2 - 6Q + 7$$

$$\text{Supply function: } P = Q^2 + 3Q + 2$$

Required;

Find the equilibrium price and quantity in the market ( 6 marks)

- A consumer has a utility function of the form  $U = f ( Q_1 , Q_2 )$  where  $Q_1$  and  $Q_2$  are two bundles of commodities consumed. Given that the price of  $Q_1$  is sh. 5 and that of  $Q_2$  is sh. 8. Assuming the consumer's income is sh. 50.

Required;

- State the constrained utility maximization problem. ( 2 marks)
  - Find the values of  $Q_1$  and  $Q_2$  that will maximize utility. ( 8 marks)
- Discuss in detail the three major properties of indifference curves. ( 6 marks)
  - A disequilibrium is said to exist if quantity demanded is not equal to quantity supplied. Discuss. (4 marks)

### Question Two

- Given a Cobb - Douglas production function

$Q = AK^{1/3} L^{2/3}$  and the corresponding cost function  $C = 2K + 3L$ .  
The firm wishes to maximize its output given a cost outlay of sh. 2000.

Required.

- i) Write down the maximization problem of the firm ( 2 marks)
- ii) Find the values of K and L for which output is maximized ( 10 marks)
- iii) Compute the maximum output. ( 3 marks)
- b) Using the above production function, derive the  $MP_K$  and  $MP_L$  ( 5 marks)

### Question Three

- a) Discuss the profit maximizing behaviour of a firm in imperfectly competitive market in the short run ( 6 marks)
- b) A monopolist cost function is given as  
 $C = 10 + Q^2 / 2$  and his inverse demand function is  $P = 20 - 2Q$

Required.

- i) Derive the total revenue and marginal revenue functions ( 4 marks)
- ii) Compute the maximum profit using price and quantity for the monopolist ( 10 marks)

### Question Four

The demand and total cost functions for a firm are given by;

$$P = 4 - \frac{1}{3} Q$$

$$TC = \frac{2}{3} Q^3 - Q^2 + 3Q + 2$$

Required. Determine;

- i) The level of output and price that will maximize profits ( 8 marks)
- ii) The level of output that will maximize total revenue ( 3 marks )
- iii) The level of output that will minimize marginal costs ( 3 marks)
- iv) The level of output that will minimize average variable costs ( 3 marks)
- v) The minimum average variable cost and marginal cost (3 marks)

### Question Five

- a) Discuss the major causes of externalities in both the public and private goods ( 4 marks)
- b) Discuss four ways of dealing with negative externalities ( 12 marks)
- c) Explain the role of the State in economic activities ( 4 marks)



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