The Co-operative University of Kenya

END OF SEMESTER EXAMINATIONS DECEMBER-2019

EXAMINATION FOR THE DEGREE OF BACHELOR OF CO-OPERATIVE BUSINESS (YR IV SEM II)

UNIT CODE: HCOB 2206/BCOM 2205/CMFI 2203

UNIT TITLE: INTERMEDIATE MICROECONOMICS

DATE: 9th DECEMBER 2019 **TIME: 9:00 AM – 11:00 AM**

INSTRUCTIONS:

- Answer question **ONE (compulsory)** and any other **TWO** questions

QUESTION ONE

(a) Discuss resource allocation mechanism in a free market economy (5 marks)

(b) Consider the following utility function:

$$U = x^{1/4} y^{5/2}$$

i) Determine the marginal utilities of x and y (5 marks)

ii) Find out whether the utility function displays characteristics of increasing or diminishing marginal utilities (5 marks)

(c) Consider a utility function of the form;

$$U = y + ½ x^{1/4}$$

Find the marginal rate of substitution between y and x (5 marks)

(d) Consider a market for maize and beans represented by the following;

$$Q_{d1} = 4 – P_1 + ½ P_2$$

$$Q_{s1} = - 3 + 4P_1$$

$$Q_{d2} = 10 + P_1 – P_2$$

$$Q_{s2} = - 18 + 4P_2$$

Find the levels of prices and quantities that clear the two markets (10 marks)

QUESTION TWO

(a) Given the production function;

$$Q = 30L^{1/2}$$

i) Find the marginal product of L

ii) What is the corresponding average product of labour? (5marks)

(b) Suppose the production function of a firm is $Q = 10L^{0.7}K^{0.3.}$ The firm wishes to minimize its costs which should not exceed sh. 400. The cost of labour is sh. 12 while that of capital is sh.15.

Required. Find the levels of capital and labour that the firm will employ to achieve its objective. (10marks)

(c) Find the marginal rate of technical substitution (MRTS) between capital and labour (5 marks)

QUESTION THREE

(a) A consumer has a utility function given by $U = f(Q_1 Q_2)$

where Q_1 and Q_2 are quantities of two commodities consumed. If the price of Q_1 is sh. 4 and that of Q_2 is sh.2, and the budget is sh. 50.

Required

a) State the consumer problem.
b) Write out the Lagrangian function
c) Find the levels of Q_1 and Q_2 that will maximize utility.
d) Compute the optimum value of U (10 marks)

(b) The demand and total cost functions for a firm are given by,

$$P = 6 - \frac{3}{5}Q$$

$$TC = 20 + \frac{1}{2}\ Q$$

Required:

i) Derive the revenue function
ii) What is the corresponding marginal revenue?
iii) Find the output level that will maximize the firm's profits (10 marks)

QUESTION FOUR

(a) Discuss the short run equilibrium of a profit-maximizing firm under imperfect competition. (6 marks)
(b) Explain four types of internal economies of scale (8 marks)
(c) Explain why a firm in a monopolistic market cannot make super normal profits in the long run. (6 marks)

QUESTION FIVE

(a) A monopolist cost function is given as

$C = 5 + Q^2$ and hisinverse demand function is $P = 10 - 2Q$

Required.

i) Derive the marginal cost and marginal revenue functions (4 marks)

ii) Compute the maximum profit using price and quantity for the monopolist (8 marks)

(b) Explain the following terms as used in game theory:

i) Strategy

ii) Zero – sum game

iii) Dominant strategy

iv) Pay – off (8 marks)