



**MURANG'A UNIVERSITY COLLEGE**

*(A Constituent College of Jomo Kenyatta University of Agriculture and Technology)*

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**SCHOOL OF BUSINESS AND ECONOMICS**

**DEPARTMENT OF COMMERCE**

**MAIN CAMPUS**

**UNIVERSITY EXAMINATIONS**

**ORDINARY**

**2015/2016 ACADEMIC YEAR**

**YEAR TWO SEMESTER TWO EXAMINATIONS**

**BACHELOR OF COMMERCE**

**COURSE CODE: HBC 2205**

**COURSE TITLE: INTERMEDIATE  
MICROECONOMICS**

**DATE:**

**TIME: 2 HOURS**

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**INSTRUCTIONS TO THE CANDIDATES**

**THIS PAPER CONSIST OF FOUR QUESTIONS**

Question one (1) is Compulsory

Answer Any Other Two (2) Questions

MRUC observes ZERO tolerance to examination irregularities

This paper consists of 5 printed pages. Please turn over. ⇒

### QUESTION ONE (30 MARKS)

- a) Define
- i) An indifference curve (2 marks)
  - ii) Substitution effect of price change (2 marks)
  - iii) Income effect of price change (2 marks)
  - iv) Marginal rate of substitution (2 marks)
  - v) Marginal rate of technical substitution. (2 marks)
- b) With the aid of a diagram, explain why consumer's indifference curves do not intersect. (4 marks)
- c) Consider the following demand function given by;

$$P = \frac{M}{20Q - 400}$$

Where;

P = Price of good X=6, M=Income=240

If price (P) decreases from 8 to 6, compute substitution and income effect of price change (10 marks)

- d) With the aid of a diagram Show that monopoly is inefficient relative to perfect competition. (6 marks)

### QUESTION TWO (20 MARKS)

- a) Utility function of an individual is given by

$$U = X^{\frac{1}{4}}Y^{\frac{3}{4}}$$

Find the optimal quantities of the two goods given that price of good X is shs. 6 per unit, price of good Y is shs. 3 per unit and income of the individual is equal to shs. 120.

(10 marks)

- b) Explain the following concepts:
- i) Constant returns to scale. (2 marks)
  - ii) Increasing returns to scale. (2 marks)
  - iii) Decreasing returns to scale. (2 marks)
- c) Prove that the slope of an isoquant is the ratio of the marginal product of the two inputs (4 marks)

### QUESTION THREE (20 MARKS)

- a) A discriminating monopolist is selling a product in two separate markets in which demand functions are:

$$P_1 = 12 - Q_1$$

$$P_2 = 20 - Q_2$$

The monopolist total cost function is:

$$TC = 3 + 2Q$$

**Required:**

- i) Determine the prices to be charged in the two markets and amount of output to be sold in each market so that profits are maximized. **(5 marks)**
  - ii) Calculate the total profits to be made from the strategy of price discrimination. **(4 marks)**
  - iii) Determine the prices to be charged in the two markets and amount of output to if the firm does not price discriminate. **(5 marks)**
- b) Consider the following demand and cost functions for a perfectly competitive firm;
- $p = 40$  {Demand function}
- $C = 50 + 10Q^2 - 20Q$  {Cost Function}
- Find, Profit maximizing level of output and level of profits. **(6 marks)**

**QUESTION FOUR (20 MARKS)**

- a) Consider two consumer's A and B whose utility functions are given as  $U_a(X_a^1, X_a^2)$  and  $U_b(X_b^1, X_b^2)$  where  $X_a^1$  and  $X_a^2$  are the amounts of goods 1 and 2 consumed by consumer A and  $X_b^1$  and  $X_b^2$  are the amounts of good 1 and 2 that consumed by consumer B. Let  $W^1$  and  $W^2$  represent the availability of the two goods 1 and 2. Show that at pareto efficiency, the marginal rate of substitution between the two goods must be equal. **(14 marks)**
- b) Identify and explain the conditions under which price discrimination is possible. **(6 marks)**