

LAIKIPIA



UNIVERSITY

UNIVERSITY EXAMINATIONS

FIRST SEMESTER 2025/2026 ACADEMIC YEAR

SECOND YEAR EXAMINATION FOR THE DEGREE
OF BACHELOR OF SCIENCE IN ECONOMICS &
STATISTICS AND BACHELOR OF COMMERCE

ECON 211/BCOM 211: INTERMEDIATE MICROECONOMICS

STREAM: BSC (ECON/STAT), BCOM

TIME: 2 HRS

DAY: WEDNESDAY [8.30 A.M-10.30 A.M] **DATE:** 4/02/2026

THIS QUESTION PAPER CONSISTS OF FOUR (4) PAGES

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INSTRUCTIONS: Answer QUESTION ONE and other TWO QUESTIONS**QUESTION ONE (30 MARKS) (COMPURSORY)**

- a) Explain the following assumptions about preferences:
- i) Completeness assumption. (2 marks)
 - ii) Reflexive assumption. (2 marks)
 - iii) Transitive assumption. (2 marks)
- b) Differentiate between the shapes of indifference curves for perfect substitute and imperfect substitute goods. (4 marks)
- c) Given the production function for a firm is,
- $$Q = 3K + 7K - L^2$$
- Find the marginal product of labour (L) and state whether the function displays characteristics of increasing, decreasing or constant marginal product with respect to labour. (3 marks)
- d) A consumer has the following utility function
- $$U(q_1, q_2) = q_1^2 q_2^2$$
- If he has a budget of Kshs 40 and the price of $q_1 = \text{Kshs } 2$ and price of $q_2 = \text{Kshs } 4$, using the lagrangian approach, determine the optimal quantities of commodity q_1 and q_2 consumed by the consumer. (10 Marks)
- e) A firm produces shoes. The market price of a pair of shoes is given by $p = 50 - 0.5q$. The firm's short run total cost function is given as,
- $$TC = 200 + 0.2Q^2$$
- i) Find the profit function for the commodity. (2 Marks)
 - ii) Determine the output level that maximizes profit. (5 Marks)

QUESTION TWO (20 MARKS)

- a) What is marginal rate of commodity substitution (MRS)? (2 Marks)
- b) Suppose there are two goods whose prices are given, and there is a consumer with a certain income. Show in a diagram the effects of a price fall of good 1 into substitution and income effect, assuming it is a giffen good. (8 Marks)

- c) State four sources of monopoly power. **(4 Mark)**
- d) The demand function of a monopolist is $p = 15 - 2Q$. If the total cost function is $C = Q^2 + 2Q$, determine profit maximizing output and price for the monopolist.

(6 Marks)**QUESTION THREE (20 MARKS)**

- a) Given the production function of the form,

$$Q = Ax_1^\alpha x_2^\beta$$

Where: A, α and β are constants

Q= Output

K= Capital

L=Labour

- i) Explain how the constants “ α ” and “ β ” can be used to determine the various kinds of returns to scale **(3 Marks)**
- ii) Determine the conditional factor demand functions for x_1 and x_2 if the cost function of the firm is,

$$C = w_1x_1 + w_2x_2 \quad \textbf{(10 Marks)}$$

- b) Explain the concept of pareto efficiency using the Edgeworth box diagram. **(7 Marks)**

QUESTION FOUR (20 MARKS)

- a) Using graphical analysis, derive the firm’s long run total cost curve. **(5Marks)**
- b) A firm in the manufacturing sector experiences the following production function,

$$Q = L^{\frac{2}{3}}K^{\frac{1}{3}}$$

A further analysis of input prices reveals that labour (L) costs w per unit, while capital (K) costs r per unit. If the total cost of production is C,

- i) Determine the quantity of labour and capital that the firm should use in order to maximize output. **(8Marks)**
- ii) Determine the maximum output. **(2 Marks)**
- iii) Show that at equilibrium, the slope of isocost equals the slope of isoquant. **(3 Marks)**
- iv) From (ii) and (iii) graph your results **(2 Marks)**

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QUESTION FIVE (20 MARKS)

- a) Explain three conditions that must hold for a firm to practice price discrimination.

(3 Marks)

- b) A monopolist pharmaceutical company is selling a drug in two markets: retail market and wholesale market. The demand curves in the two markets are as follows

$$Q_1 = 1000 - 20P_1 \quad \text{retail market demand function}$$

$$Q_2 = 1400 - 40P_2 \quad \text{wholesale market demand function}$$

The company's cost function in the short run is:

$$TC = 100 + 10Q : \text{Where } Q = Q_1 + Q_2$$

If the company sets different prices for the two markets, what price would it charge the retail customers and wholesale customers?

(6 Mark)

- c) Explain the properties of technology.

(6 Mark)

- d) Suppose the consumer's income is KSh 1200 and the price of good X be KSh 6 per unit.

After some time, the price of good X falls to KSh 3 per unit while income remains constant.

Calculate the substitution effect if the consumer's demand function for good X is of the form

$$X = 1000 + \frac{M}{10} \quad .$$

(5 Mark)