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KIRIRI WOMENS' UNIVERSITY OF SCIENCE AND TECHNOLOGY

UNIVERSITY EXAMINATION, 2023/2024 ACADEMIC YEAR
SECOND YEAR, FIRST SEMESTER EXAMINATION
FOR THE DEGREE OF BACHELOR OF SCIENCE
(BUSINESS ADMINISTRATION)

Date: 8th December, 2023
Time: 2.30pm –4.30pm

KFI 201 - INTERMEDIATE MICRO ECONOMIC THEORY

INSTRUCTIONS TO CANDIDATES

ANSWER **QUESTION ONE (COMPULSORY)** AND **ANY OTHER TWO** QUESTIONS

QUESTION ONE (30 MARKS)

At the 1927 meetings of the American Economic Association, Paul Douglas and Charles Cobb presented a groundbreaking paper entitled "A Theory of Production." This paper introduced the Cobb-Douglas function, a mathematical representation of the relationship between capital, labor, and output. While the function itself had been proposed by Knut Wicksell, Douglas and Cobb innovatively applied it as the basis of a statistical procedure for estimating the relationship between inputs and output. This marked a significant advancement in economic theory. In a related context, Paul Samuelson, a prominent American economist and Nobel laureate, introduced the theory of the budget line in his 1947 book "Foundations of Economic Analysis." Samuelson's contributions to economic theory earned him the title of the "Father of Modern Economics."

Required;

a) Cobb-Douglas Utility Function: Building on the 1927 presentation by Douglas and Cobb, explain how the Cobb-Douglas utility function $U(X1, X2) = X1^{\alpha} * X2^{\beta}$, in conjunction with the budget constraint $P1X1 + P2X2 = M$, can be used to determine the demand functions for X1 and X2. (6 Marks)

b) Discuss the properties of the Cobb-Douglas production function in light of its role as a mathematical representation of the relationship between capital, labor, and output. (6 Marks)

c) Illustrate and explain the Cobb-Douglas utility function, as presented by Paul Douglas and Charles Cobb in 1927. (6 Marks)

d) Explain three conditions that characterize a price-discriminating monopolist giving example in each case. (6 Marks)

e) Following the economic theories expounded by Paul Samuelson and others, illustrate and explain the concept of consumer equilibrium. (6 Marks)

QUESTION TWO (20 MARKS)

a) Differentiate between the ordinal approach of utility and the cardinal approach function. (4 Marks)

b) Explain the conditions which must be fulfilled for the implementation of price discrimination. (8 Marks)

c) Using proper diagrams differentiate and explain the shapes of indifference curves for neutral goods and bad goods substitutes. (8 Marks)

QUESTION THREE (20 MARKS)

a) A firm produces 2 products. The demand function for one product is $Q_1=491/3-2/3P_1$.While the demand function for product 2 is $Q_2=36-1/2P_2$ If the total cost function is given as $C= Q_1^2- 2Q_1Q_2-Q_2^2+120$.Determine the Q_1, Q_2, P_1, P_2 that maximizes the profit of the firm hence the maximum profit realized. (8 Marks)

b) Describe any two types of monopoly. (4 Marks)

c) Differentiate between the weak axiom of revealed preference and the strong axiom of revealed preference. (8 Marks)

QUESTION FOUR (20 MARKS)

a) Using illustration, derive the profit maximization condition for a competitive market firm. (8Marks)

b) Describe briefly the meaning of price discrimination. (4Marks)

c) Demonstrate how general equilibrium is achieved using relevant illustration(use edge worth box diagram). (8 Marks)

QUESTION FIVE(20 MARKS)

a) Explain the concept of budget constraint. (6 Marks)

b) The demand function of a monopoly is Q=60-0.5P and the cost function C=80+40Q.

i) Determine the price and output level that maximizes the monopolist profit. (4 Marks)

ii) Assume a competitive market. Determine the price and output level that maximizes the profit. (4 Marks)

c) Explain the following terms;

i) Substitution effect

ii) The marginal product

iii) Marginal rate of substitution (6 Marks)