



**ALUPE UNIVERSITY
COLLEGE**

... Bastion of Knowledge...

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OFFICE OF THE DEPUTY PRINCIPAL
ACADEMICS, RESEARCH AND STUDENTS' AFFAIRS

UNIVERSITY EXAMINATIONS

2019 /2020 ACADEMIC YEAR

...4th.... YEAR ...1st..... SEMESTER REGULAR EXAMINATION
FOR THE DEGREE OF BACHELOR OF SCIENCE
ECONOMICS

COURSE CODE: ECO 410
COURSE TITLE: Advance Micro Economics

DATE: 12/03/2021 TIME: 2 pm- 5 pm

INSTRUCTION TO CANDIDATES

See inside

THIS PAPER CONSISTS OF 2 PRINTED PAGES

PLEASE TURN OVER

REGULAR – MAIN EXAM

ECO 410: ADVANCED MICRO ECONOMICS

DURATION: 3 Hours

INSTRUCTIONS TO CANDIDATES

- i. Answer Question **ONE** and any other **TWO** questions.
- ii. Maps and diagrams should be used whenever they serve to illustrate the answer.
- iii. Do not write on the question paper

QUESTION ONE (30 marks)

The demand function in a fish industry in Busia County is of the form

$$Q = 100 - P^2$$

where q is the quantity demanded and p is the price. The technology in the p^2 market is such that each unit can be produced at a constant cost of Ksh.50 a) If the industry is supplied by perfectly competitive firms, what is the equilibrium price and industry output? (5 marks)

b) What is the price elasticity of demand faced by a single firm at this price if the firm increases its price? (5 marks)

c) If the industry is supplied by a monopolist, what is the equilibrium price and industry output? What is the price elasticity of demand faced by the monopolist at this price if the firm increases its price? (10 marks)

d) If the industry is supplied by two identical oligopolists engaged in Cournot (simultaneous quantity setting) competition, what is the equilibrium price and industry output? (10 marks)

QUESTION TWO

(a) Suppose every firm in a perfect competitive market has the following cost function

$$C(y) = y^3 - 10y^2 + 42y$$

Where y = output of the firm

(i) How much output will each firm produce and at what price? (4 marks)

(ii) Suppose the market demand function is given as $Y = 2,750 - 75P$, what would be the total market demand? (2marks)

(iii) Given the information obtained in (i) and (ii) above, what is the optimal number of firms in this market? (2marks)

(iv) Suppose a quantity tax of Kshs. 3 is introduced on every amount consumed, what is the new market demand and new optimal number of firms? ([Assume the burden of the tax is fully reflected in the price] (2marks)

(v) How many firms exit the market due to the price rise? (2marks)

(b) Discuss any 4 properties of a well-behaved profit function (8marks)

QUESTION THREE (20 marks)

Write short notes on the following:

i) Marginal physical product (2 marks).

ii) Law of increasing returns (2 marks)

iii) Law of diminishing returns (2 marks)

iv) Euler's theorem (2 marks)

v) Maximization of utility (2 marks)

vi) Consumer's equilibrium (2 marks)

vii) Explain how the general economic equilibrium balance demand and supply (8 marks)

QUESTION FOUR (20 marks)

An oligopoly market comprises two firms facing the demand curve specified as $P = 100 - 2Y$, where Y is the total industry output ($Y = Y_1 + Y_2$). The respective cost functions for the two firms are given as $C_1 = 40$ and $C_2 = 0.5Y_2^2$ respectively.

(a) Assuming that the firms are engaged in a sequential game (Stackelberg Model) and that Firm 1 is the quantity leader and Firm 2 is the quantity follower:

(i) Find the reaction curve for Firm 2 (8 marks)

(ii) Find the equilibrium price (P) and quantities (Y_1, Y_2, Y) (6 marks)

(b) Now assume that the firms are engaged in a simultaneous game (Cournot Model), how would the values in part (a) (ii) differ? (6 marks)

QUESTION FIVE (20 marks)

A local microbrewery has total costs of production given by the equation $TC=200+10q+5q^2$. This implies that the firm's marginal cost is given by the equation $MC=10+10q$ (you do not need to be able to show this). The market demand for beer is given by the equation $Q_D=100 - (1/2)*P$.

- a) Write the equations showing the brewery's average total cost and average variable cost and average fixed cost, each as a function of q . Show the firm's MC, ATC and AVC on one graph. (8 marks)
- b) What is the breakeven price and breakeven quantity for this firm in the short run? (4 marks)
- c) If the market price of the output is \$50, how many units will this firm produce? (4Marks)
- d) What is the shutdown price and shutdown quantity for this firm in the short run? (4 marks)