KIRIRI WOMENS' UNIVERSITY OF SCIENCE AND TECHNOLOGY
UNIVERSITY EXAMINATION, 2024/2025 ACADEMIC YEAR
FIRST YEAR, FIRST SEMESTER EXAMINATION
MASTER IN BUSINESS ADMINISTRATION

Date: 17th April, 2024
Time: 2.00pm –5.00pm

KIB 3110 - MANAGERIAL ECONOMICS

INSTRUCTIONS TO CANDIDATES_____

ANSWER **QUESTION ONE (COMPULSORY)** AND **ANY OTHER THREE** QUESTIONS_____

QUESTION ONE (40 MARKS)

READ THE CASE STUDY THEN ANSWER THE QUESTIONS BELOW:

The market structures of the pharmaceutical industry are an interesting one. This is because the pharmaceutical market is vastly different from the IT market and the market modelling has been based largely on innovation. There are three aspects of the market structure of the pharmaceutical industry. The first of them being that this industry is strongly reliant on research and development and that which has undergone several radical technological changes. The second factor lies in the aspect that this industry is strongly based on science and science alone.

This science base has influenced the course of the industry structure dramatically. More recently, the advent of a new science of molecular biology has had a significant impact on the market structure of the pharmaceutical industry. Thirdly, the pharmaceutical industry since the time it began has been based on the premise of institutional policies, patents and so on. Therefore, the examination of such a dynamic industry makes for an ideal examination of the economics of innovation by way of exploring scientific research in relation to market dynamics and innovation.

a) "As a Business Manager with very little knowledge of economics, you would be very deficient to handle issues in such market structures". Explain.

(6 Marks)

b) How relevant are the shapes of the cost curves in such a market structure in decision making to you as a Manager? (6 Marks)

c) How could globalization influence growth of such an industry in Kenya .

(7 Marks)

d) How can linear programming technique assist you to make decisions in such an industry? Bring out the three components of a linear programming problem.

(6 Marks)

e) Prove mathematically how a monopolist's marginal revenue curve in such an industry is bigger than that of a firm in a perfectly competitive market.

(7 Marks)

f)   Assume the following linear programming problem in the industry. Use graphical method to solve it.

Maximize $C = 12X_1 + 42X_2$
Subject to $X_1 + 2X_2 \geq 3$
                    $X_1 + 4X_2 \geq 4$
                    $3X_1 + X_2 \geq 3$
                    $X_1, X_2 \geq 0$ (8 Marks)

QUESTION TWO (20 MARKS)

a)   Demonstrate mathematically the conditions at which the firm maximizes profits in a perfectly competitive market structure.   (7 Marks)

b)   Demonstrate graphically the conditions at which the firm maximizes profits in a perfectly competitive market structure.   (5 Marks)

c)   Discus the oligopolistic market structure.   (8 Marks)

QUESTION THREE (20 MARKS)

a)   A firm wants to maximize output subject to a given cost limit (financial constraint) while using only two factors of production, labor and capital. Derive the first order conditions.
                                                                                                      (6 Marks)

b)   Demonstrate the equilibrium conditions of the firm.
                                                                                                      (6 Marks)

c)   Explain two pricing strategies by firms.
                                                                                                      (8 Marks)

QUESTION FOUR (20 MARKS)

a)   Two players, Row and Column, are driving toward each other on a one-lane road. Each player chooses simultaneously between going straight (S), swerving left (L), and swerving right (R). If one player goes straight while the other swerves, either right or left, the one who goes straight gets payoff 3 while the other gets –1. If each player swerves to his left, or each swerves to his right, then each gets 0 (remember, they are going in opposite directions). If both go straight, or if one swerves to his left while the other swerves to his right, then the cars crash and each gets payoff -4 (minus 4).

i) Write the payoff matrix for this game.
                                                                                                      (6 Marks)

ii) Find all of the game's Nash equilibria in pure strategies.
                                                                                                      (3 Marks)

iii) Find a Nash equilibrium in which Row uses a pure strategy and Column mixes between two of his strategies. Clearly identify which strategy or strategies have positive probabilities for each player, and what Column's mixing probabilities are. (Hint: Which of Row's pure strategies could make Column willing to put positive probability on two of Column's pure strategies?)   (3 Marks)

b)   Using graphs, explain the shapes of the Total Variable Cost Curve (TVC) and the Average Variable Cost Curve.   (8 Marks)

QUESTION FIVE (20 MARKS)

a)   Given the following information on an ICT assignment, answer the following questions below.

TASK	DESCRIPTION	DURATION WORKING DAYS	PREDECESSOR
A	Requirement Analysis	5	-
B	Systems Design	15	A
C	Programming	25	B
D	Telecoms	15	B
E	Hardware Installations	30	B
F	Integration	10	C, D
G	Systems Testing	10	E, F
H	Training/Support	5	G
I	Hand-Over and Go-Live	5	H

    i)   Determine the critical path of the assignment.

                                                                    (6 Marks)

    ii) Calculate the planned duration of the assignment in weeks.

                                                                    (2 Marks)

b)   As a Manager, explain how the following global problems may affect your business.

        i)   Oil Prices.   (4 Marks)

        ii) Exchange Rate.   (4 Marks)

        iii) Climate Change.   (4 Marks)

QUESTION SIX (20 MARKS)

a)   Given the demand curve of a monopolist as $X = 50 – 0.5P$ and the cost function as $C = 50 + 40X$. Confirm the two conditions for profit maximization.   (8 Marks)

b)   Compute the price and total profits made by the monopolist.

                                                                    (4 Marks)

c)   Explain the Williamson and Marris's models.

                                                                    (8 Marks)