MAASAI MARA UNIVERSITY

REGULAR UNIVERSITY EXAMINATIONS
2022/2023 ACADEMIC YEAR
SECOND YEAR FIRST SEMESTER

SCHOOL OF BUSINESS AND ECONOMICS
BSC. ECON, BSC. ECON & STAT, BSC. FIN ECON, BCOM, BSC. PPM, B.Ed., BSc. ENT.

COURSE CODE: ECO 2103-1

COURSE TITLE: INTERMEDIATE MICROECONOMICS

DATE: 15TH DECEMBER, 2022   **TIME: 0830-1030**

INSTRUCTIONS TO CANDIDATES

Answer Question **ONE** and any other **TWO** questions

This paper consists of 4 printed pages. Please turn over.

QUESTION ONE

a) Clearly distinguish between the following concepts and terms as used in Economics. Use diagrams and formulas where necessary:
   i. Weak Axiom of Revealed Preference and Strong Axiom of Revealed Preference
   ii. Hicksian's Substitution Effect and Slutsky's Substitution Effect
   (5 marks)

b) Find the Marginal Rate of Substitution for the following utility function

   $$U(x,y) = X^a Y^{1-a}$$ **(4 marks)**

c) David and Aminga are producing irish potatoes in their Mau farm. The demand function for potatoes is given as $Q = 200 - P$ where P is price of potatoes and Q is output. The marginal cost of their production is given as $MC = Q^2 - 28Q + 211$. Further investigation shows that the farm's cost when not producing output is Ksh. 1,000. Compute:
   i. The equation for Total Revenue
   ii. The equation for Total Cost
   iii. The level of output that maximizes their profit
   iv. The farm's profit/loss **(6 Marks)**

d) Juma loves to consume *Mrenda* which exhibits unique characteristic such that its Substitution Effect opposes and outweighs its Income Effect. Using Consumer Equilibrium analysis, explain and illustrate graphically the effect of an increase in the price of *Mrenda* on Juma's consumption. Based on its characteristic, how would you categorize *Mrenda* **(5 Marks)**

QUESTION TWO

a) Darex and Ngendo run a third-degree monopoly firm faced with two markets X and Y with two demand and cost functions given as:

   $$Q_x = 16 - 0.5P_x$$

   $$Q_y = 22 - P_y$$

   $$TC = Q^2 + 2Q + 10$$

Calculate:

i. The allocation of total output between the two markets
ii. Equilibrium price for each market
iii. Total profit at profit maximizing output **(10 Marks)**

b) Given the demand function as:

$$Q_d = b_0 - b_1 P$$

Derive the Average Revenue and Marginal Revenue functions and compare the two **(5 marks)**

QUESTION THREE

Selina has the following production function in her Gesusu banana farm

$$Q = 20\sqrt{LK}$$

Where Q is the quantity of banana produced while K and L are units of inputs capital and labour respectively.

Supposing that price of capital (r) is Ksh 160 and that of labour (w) is Ksh. 40 respectively, and that Selina wants to produce a total output of $Q_0 = 20,000$:

a) Determine the cost minimizing combination of inputs L and K that will reach the given output level **(8 Marks)**
b) What quantity of bananas will Selina produce given the above input combination **(2 Marks)**
c) Benta's Average Total Cost function for the production of Avocado juice is given as follows:

$$ATC = 0.48Q^2 - 0.4Q + 10 + 6Q^{-1}$$

Derive Benta's short run supply function **(5 marks)**

QUESTION FOUR

Riziki has the following Cobb-Douglas utility function for the consumption of beaf stew (X) and chapati (Y) at Friends Hotel

$$U(x, y) = X^{1/3} Y^{2/3}$$

Given that the price of beaf stew is Ksh. 50, Price of chapati is Ksh 40 and that Riziki has Ksh. 4000 to spend on the two goods in a Semester:

a) Using Marginal Utility approach, compute her optimal consumption bundle for the two goods.

b) If the price of beaf increases from Ksh. 50 to Ksh. 80, what will be Riziki's new consumption bundle?

c) Calculate the Substitution Effect (SE) and Income Effect (IE) resulting from the increase in price of beaf stew

d) What will be the Total Effect (TE) of the price change?

e) Using the sign of the income effect, what can you say about good X? Why? **(15 Marks)**

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