MAASAI MARA UNIVERSITY

REGULAR UNIVERSITY EXAMINATIONS
2023/2024 ACADEMIC YEAR
SECOND YEAR FIRSTSEMESTER

SCHOOL OF BUSINESS & ECONOMICS
BACHELOR OF SCIENCE IN ECONOMICS

COURSE CODE: ECO 2104-1

COURSE TITLE: PRODUCTION ECONOMICS

DATE: 6/12/ 2023 **TIME: 1100-1300 HRS**

INSTRUCTIONS TO CANDIDATES

1. Answerquestion ONE and ANY other two questions

QUESTION ONE (COMPULSORY)

(a) Discuss the scope of production economics. **2 marks**

(b) Write brief notes on the following:

(i) Technical efficiency **1 mark**

(ii) Cost efficiency **1 mark**

(iii) Allocative efficiency **1 mark**

(iv) Isocosts **1 mark**

(v) Ridgelines **1 mark**

(c) Assume a general multiplicative production function of the form $y = 2x^b$.

(i) Derive the corresponding MPP and APP functions **5 marks**

(ii) Sketch the graph of TPP, APP and MPP when the value of b is 5, 0.7, 3, 0.3, 2, 0, 1.5, -0.5, 1.0, -1.0. Be sure to show the sign, slope and curvature of MPP and APP. **5 marks**

(iii) What is the value for the elasticity of production in each case? **3 marks**

QUESTION TWO

Consider the production function $y=aX^b$

(a) Determine the supply function of the firm. **8 marks**

(b) The elasticity of supply with respect to input and output prices. **4 marks**

(c) The profit function. **3 marks**

QUESTION THREE

Suppose that the production function is given by $y = x_1^{0.5}x_2^{0.333}$ find

(a) The MPP of x_1 and x_2. **2 marks**

(b) The Marginal rate of substitution of x_1 for x_2. **4 marks**

(c) Draw the isoquants for this production function. Do they lie closer to the x_1 or the x_2 axis? Explain. **6 marks**

(d) What relationship does the position of the isoquants have relative to the productivity of each input? **3 marks**

QUESTION FOUR

Consider the following table of a farmer producing maize:

Combination	Units of X_1	Units of X_2
A	10	1
B	5	2
C	3	3
D	2	4
E	1.5	5

(a) Suppose that the price of x_1 and x_2 is each a shilling. What combination of x_1 and x_2 would be used to achieve the least-cost combination of inputs needed to produce 100 bag of maize? **6 marks**

(b) Suppose that the price of x_2 increased to 2 shillings. What combination of x_1 and x_2 would be used to produce 100 bags of maize? **3 marks**

(c) If the farmer was capable of producing 100 bags of maize when the price of x_1 and x_2 were both 1 shilling, would he or she necessarily also be able to produce 100 bags of maize when the price of x_2 increases to 2 shillings? Explain. **2 marks**

(d) What is the MRTSx_1x_2 and x_2x_1 for each combination? **4 marks**

/END/