



**NAMIBIA UNIVERSITY
OF SCIENCE AND TECHNOLOGY**

FACULTY OF HEALTH, NATURAL RESOURCES AND APPLIED SCIENCES

DEPARTMENT OF AGRICULTURAL SCIENCES AND AGRIBUSINESS

QUALIFICATION: BACHELOR OF SCIENCE IN AGRICULTURE	
QUALIFICATION CODE: 07BAGA	LEVEL: 6
COURSE CODE: PPE621S	COURSE NAME: PRINCIPLES OF PRODUCTION ECONOMICS
SESSION: JUNE 2025	PAPER: 1
DURATION: 3 HOURS	MARKS: 100

FIRST OPPORTUNITY EXAMINATION QUESTION PAPER	
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INSTRUCTIONS	
1. This question paper consists of five (5) questions.	
2. Answer ALL questions in blue or black ink.	
3. Start each question on a new page in your answer booklet.	

THIS QUESTION PAPER CONSISTS OF 4 PAGES (Including this front page)

Question 1

- (a) Discuss the importance of studying Production Economics. At least two points. [4]
- (b) Mention three of the most important factors of production. (3)
- (c) Differentiate the short-run production process and long-run production process (4)
- (d) Discuss the physical relationship between resources (inputs) and output (yield) in a production function. (4)

Sub-Total (15)

Question 2

“Assuming the relationship between Mahangu yield and Nitrogen fertiliser application is given as:

$$y = 0.84x + 0.0068x^2 - 0.00045x^3$$

- (a) Calculate the Mahangu yield when the quantity of fertiliser applied is 5, 10, 15, ...50. Round your answers to the nearest whole number. [10]

Quantity of Nitrogen (kg/ha)	Mahangu yield (kg/ha) Total Physical Product (TPP)	Average Physical Product (APP)	Marginal Physical Product (MPP)
5			
10			
15			
20			
25			
30			
35			
40			
45			
50			

- (b) Discuss the result of the Mahangu yield (TPP). [3]
- (c) Calculate the average physical product and fill in the Table. [10]
- (d) Discuss the relationship between the input used in the production and the Average Physical Product. [2]
- (e) Calculate the Marginal Physical Product and fill in the Table. [9]
- (f) Discuss the relationship between the input used in the production and the Marginal Physical Product. [2]

Sub - Total [36]

Question 3

- (a) Assume the following function gives a maize production function.

$$y = 4 + 24x - 4x^2$$

- (i) Find the input level that maximises output. [2]
- (i) What is the maximum Maize output at the calculated input level? [2]
- (ii) Find the input level that Average Physical Product [3]

(b) Define the following concepts.

- (i) Production efficiency [2]
- (ii) Technical efficiency [2]
- (iii) Allocative efficiency [2]
- (iv) Economic efficiency [2]

(c) The total cost of producing an item is N\$450. The cost of capital per production unit is N\$30 and the Labour cost per unit is N\$50.

- (i) Determine the Iso-cost equation. [2]
- (ii) Draw and label the Isocost line. [3]

Sub-Total [20]

Question 4

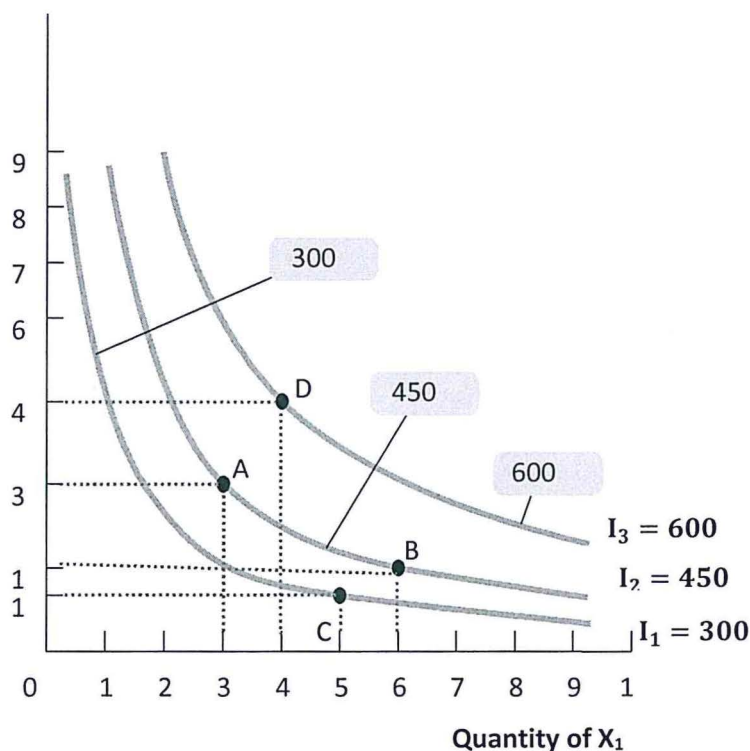
(a) Assume you are considering the production function in the short-run, specify which production stage is the following happening?

- (i) TPP is increasing at an increasing rate, and MPP is increasing. [2]
- (ii) TPP has a slope = 0. [2]
- (iii) APP is declining and above MPP, but MPP is negative. [2]
- (iv) TPP is increasing at a decreasing rate, and MPP is decreasing but above APP. [2]
- (v) TPP is constant [2]

(b) Explain why you cannot recommend someone to produce in stage III in relation to the quantity of inputs and the Total Physical Product. [2]

(c) Study the isoquant lines below and answer the questions below:

Quantity of X_2



- (i) On the isoquant line above, which of the isoquants would you recommend a rational farmer to produce goods? Motivate your choice. [2]
- (ii) What do points A and B mean to you? [2]
- (iii) Which one between points (A and B) do you recommend to the rational farmer to produce? Motivate your choice. [2]
- (iv) Given the available choice, will you be comfortable producing at point C? Motivate your answer. [2]
- (d) List three features of an Isoquant. [6]
- (e) Give reasons why the Isoquant line cannot cross. [3]
- Sub-Total** [29]

End!