

1st SEM. 2017/2018



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UNIVERSITY OF SWAZILAND

SUPPLEMENTARY EXAMINATION PAPER

PROGRAMME: BSc. in Agricultural Economics and Agribusiness
Management Year 4

COURSE CODE: AEM 405

TITLE OF PAPER: PRODUCTION ECONOMICS

TIME ALLOWED: TWO (2): HOURS

- INSTRUCTION: 1. ANSWER ALL FOUR QUESTIONS
2. EACH QUESTION CARRIES 25 POINTS

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CHIEF INVIGILATOR

Question 1

- a) What do you understand by the following terms:
- i. Production function **3 MARKS**
 - ii. Economic efficiency **4 MARKS**
- b) Differentiate among the following:
- i. Short run and long run production functions **6 MARKS**
 - ii. Short run and long run costs **6 MARKS**
 - iii. Marginal rate of product substitution and Marginal rate of input substitution **6 MARKS**

Question 2

With the help of figures **show and discuss** the physical (total physical product, marginal physical product, average physical product) and cost (marginal costs, average total costs, average variable costs) relationship in the three stages of production. **25 MARKS**

Question 3

- a) Suppose the production function is given by $Y = X_1^{1/3}X_2^{1/3}$; where Y is output and X_1 and X_2 are inputs. If the price of X_1 is E3, price of X_2 is E3 and output price is E18, what is the marginal product of each of the two inputs at the least cost input combination? **12 MARKS**

- b) Consider two production functions for maize (M) and Beans (B) each employing labour (L) as the variable Input:

$$M = 10 + 2L_M - 0.1L_M^2$$

$$B = 5 + 4L_B - 0.2L_B^2$$

If the price of Maize is E2.00 per Kg and price of beans is E 1.00 per Kg. How would you allocate 10 labourers among the maize and beans enterprises? **13 MARKS**

Question 4

a) Given the production function:

$$Y = 18X_1 - X_1^2 + 14X_2 - X_2^2;$$

and the prices: $P_{X_1} = E9$; $P_{X_2} = E7$; $P_Y = E0.65$

- i. Compute the profit maximising levels of inputs **5 MARKS**
- ii. What is the value of Y **4 MARKS**
- iii. What is the profit **4 MARKS**

b) Consider the production $Y = X_1^{3/4}X_2^{1/4}$. Find the least cost combination of X_1 and X_2 to produce 12 units of Y when (i) $P_{X_1} = 3$; $P_{X_2} = 1$; and when (ii) $P_{X_1} = 48$; $P_{X_2} = 1$.

12 MARKS