UNIVERSITY OF SWAZILAND

FINAL EXAMINATION PAPER

PROGRAMME: BACHELOR OF SCIENCE IN AGRICULTURAL
                  ECONOMICS YEAR IV

COURSE CODE: AEM 405

TITLE OF PAPER: PRODUCTION ECONOMICS

TIME ALLOWED: TWO (2) HOURS

INSTRUCTION: ANSWER ALL FOUR (4) QUESTIONS

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GRANTED BY THE CHIEF INVIGILATOR

Question 1

(a) Discuss the three stages of production concept and the associated economic recommendations. **10 MARKS**

(b) Explain how and why the elasticity of production is related to the definition of diminishing returns. **6 MARKS**

(c) Explain the concept of economic efficiency as the assumed goal of the farm manager. **8 MARKS**

(d) Briefly explain the concepts of perfect certainty and length of time period with reference to the production process. **6 MARKS**

(e) Discuss the relationship between inputs and among outputs assuming that all are completely divisible. **10 MARKS**

Question 2

Suppose a farm manager is producing Grain and Forage partly for use by his own livestock enterprise.

(a) Describe with the help of a diagram a situation where the entire amount of grain and forage produced is sold through the livestock enterprise. **14 MARKS**

(b) With the help of a diagram(s) describe a situation where the output of grain and forage is not the same as the amount of grain and forage needed to maximize meat production. What objective of the farm manager is met in this case?

16 MARKS

Question 3

(a) State the conditions that are met when one input is allocated among several enterprises (products). **5 MARKS**

(b) Why should the ratio of the value of marginal product per lilangeni spent on an input be equal in all enterprises using these inputs? How would you explain the situation when each ratio is equal to 1 and when different from 1. **10 MARKS**

(c) Consider the production function $Y = X_1 X_2$. The price of input X_1 is E20 and the price of input X_2 is E10. Which combination of the two inputs will produce the maximum output when the farm manager has only E10000.00 to spend on them?

7 MARKS

(d) Consider two production functions for Tomatoes (T) and Cabbages (C) to be produced by input X, where $T = 10 + 2X - 0.1X^2$ and $C = 5 + 4X - 0.2X^2$. If the price of tomatoes is E6 per kilogram and the price of cabbage is E3 per head, how will the farm manager allocate 1000 units of input X?

8 MARKS

Question 4

(a) What criteria would you use to allocate owned (not purchased) inputs to various enterprises. Support your answer with reasons.

5 MARKS

(b) Write short notes on the following:
  (i) Depreciation and obsolescence. **5 MARKS**
  (ii) Purchasing versus renting durable inputs. **5 MARKS**

(c) Suppose the production functions for Maize and Wheat are given as follows:

$$M = 65.54 + 1.084L_M - 0.003L_M{}^2$$

$$W = 68.07 + 0.830L_W . 0.002L_W{}^2$$

where M is maize in bags per hectare, W is wheat in bags per hectare, L_M is labour hours employed on land for growing maize, and L_W is labour hours employed on land for growing wheat.
What combinations of maize and wheat outputs in bags will yield the maximum returns if the price of maize is E4000 per bag and the price of wheat is E2000 per bag, when labour hours availability is limited to 1000 hours?

15 MARKS