UNIVERSITY OF ESWATINI

FINAL EXAMINATION PAPER

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

COURSE CODE: AEM407/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 (25 MARKS)

a) Discuss the five (5) production economics assumptions.   **15 MARKS**

b) Where should a rational firm produce? In your answer discuss why the rational firm should produce or not produce in stages I, II and III.   **10 MARKS**

Question 2 (25 MARKS)

a) Consider the production function, $Y = 4X$. What is the:

   i.   Inverse production function   **2 MARKS**

   ii.   APP   **2 MARKS**

   iii.   MPP   **2 MARKS**

   iv.   TVC   **2 MARKS**

   v.   AVC   **2 MARKS**

   vi.   MC   **2 MARKS**

b) Consider the production function $Y = 70 + 2X - 0.02X^2$.

   i.   Find the level of X at which Y is a maximum.   **4 MARKS**

   ii.   Calculate the elasticity of production, APP and MPP when $X = 30$ **4 MARKS**

   iii.   Find the level of X maximizing net returns (i.e. profits) when $P_x = E1$ and $P_y = E10$.   **5 MARKS**

Question 3 (25 MARKS)

Given the product-product relationship equation: $Y_1 = 100 - 0.0065Y_2^2$ and the prices $P_{Y1} = 5$ and $P_{Y2} = 6$:

   i.   What is the maximum amount of Y_1 and Y_2 that can be obtained?   **5 MARKS**

   ii.   What is the exact MRPS?   **5 MARKS**

   iii.   What is the slope of the isorevenue line?   **5 MARKS**

   iv.   Find the optimum combination of Y_1 and Y_2 that maximise revenue.   **10 MARKS**

Question 4 (25 MARKS)

a) 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?　　　**12 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) $Px_1 = 3$; $Px_2 = 1$; and when (ii) $Px_1 = 48$; $Px_2 = 1$.

13 MARKS