

FIRST SEM 2018/2019



UNIVERSITY OF ESWATINI  
FINAL EXAMINATION EXAM PAPER

PROGRAMME: BSc in Agricultural Economics and Management

COURSE CODE: AEM 201

TITLE OF PAPER: INTERMEDIATE MICROECONOMICS

TIME ALLOWED: 2.00 HOURS

INSTRUCTION : ANSWER ALL QUESTIONS

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**Question 1 [ 25 POINTS]**

a) What is the difference between an indifference curve and indifference map ? [ 5 points]

b) Given the Cobb Douglas Utility function  $U = Ax^{\alpha}y^{\beta}$

Find the Marginal Rate of Substitution of consumption good X and Y [ 10 Points]

c) What are the determinant of price elasticity of demand for a commodity? [5 points]

d) Why does a firm under monopolistic competition is likely to produce less and set a higher price than under perfect competition? [5 points]

**Question 2 [ 25 POINTS ]**

a) Suppose that a consumer preference of apples ( $x_1$ ) and plums ( $x_2$ ) is represented a Cobb-Douglas Utility function.  $U(x_1, x_2) = x_1^a x_2^b$

Assuming the price ratio of consumption goods  $X_1$  and  $X_2$  is represented by  $-p_1/p_2$ , derive the ordinary demand (Marshallian demand) of the two commodities. You must show your work to get maximum points (15 Points)

b) What is the indirect utility function of the consumer referred above and give the economic interpretation? [10 points]

**Question 3 [ 25 POINTS]**

a) A monopolist is deciding how to allocate output between two markets. The two markets are separated geographically (East Coast and Midwest). The monopolist's total cost is  $TC = 5 + 3(Q_a + Q_b)$ , and thus,  $MC = 3$ . The monopolist's demand and marginal revenue for the two markets are as follows below. Calculate the monopolist's price, output, profit and the deadweight loss to society if s/he can price discriminate. (15 points)

$$P_a = 15 - Q_a;$$

$$MR_a = 15 - 2Q_a$$



$$P_b = 25 - 2Q_b;$$

$$MR_b = 25 - 4Q_b$$

- b) Suppose a firm can perfectly price discriminate. What is the lowest price it will charge, and what will its total output be? (5 points)

**Question 4 [ 25 POINTS ]**

A farmer produces maize using seeds ( K ) and labor (L). He has access to the technology given by the following production function

$$y = F(K;L) = K^{1/3}L^{1/3}$$

The price of maize per Kg is  $p = E1$ ; the price of seeds ) is  $w_k = E2$  and the (Labor ) wage rate is  $w_l = E1$

- a) What form of production function is displayed by the technology? [ 2 points]
- b) Does this function exhibit increasing, constant or decreasing returns to scale? [3 points]
- c) Write down the profit function (a function that depends on K and L) [5 points]
- d) Find the optimal input levels, the output level and the maximal profit. [10 points]
- e) Find the profit maximizing production plan [ 5 points ]