

**UNIVERSITY OF SWAZILAND
FACULTY OF SOCIAL SCIENCES
DEPARTMENT OF ECONOMICS
MAIN EXAMINATION PAPER: MAY 2017**

TITLE OF PAPER : MICROECONOMICS

COURSE CODE : ECON 201

TIME ALLOWED : THREE (3) HOURS

INSTRUCTIONS :

- 1. ANSWER FOUR QUESTIONS IN ALL, TWO (2) QUESTIONS FROM EACH SECTION.**
- 2. ALL QUESTIONS CARRY TWENTY FIVE (25) MARKS EACH.**
- 3. NON PROGRAMMABLE CALCULATORS ARE ALLOWED.**
- 4. WHERE NECESSARY, FIGURES ARE TO BE ROUNDED UP TO TWO (2) DECIMAL POINTS.**

THIS QUESTION PAPER IS NOT TO BE OPENED UNTIL PERMISSION HAS BEEN GRANTED BY THE INVIGILATOR

SECTION A

Answer Two Questions only from this Section.

Question 1

[25 Marks]

- a) Briefly explain the concepts of **Economies** and **Diseconomies of Scale**. [5 Marks]
- b) Discuss three (3) characteristics of isoquant curves in relation to producer theory. [6 Marks]
- c) Describe and graphically illustrate the concept of Returns to Scale. [9 Marks]
- d) Write short explanatory notes on the Long Run Expansion Path. [5 Marks]

Question 2

[25 Marks]

- a) The long run average cost (LRAC) curve is referred to as “an envelope” of the short run average cost (SRAC) curves. Illustrate and explain why this is so. [15 Marks]
- b) Algebraically demonstrate the inverse relationship between average variable cost and average productivity, and also marginal cost and marginal productivity in the short run. [10 marks]

Question 3

[25 Marks]

Given the following information about an ECON 201 student:

Utility function : $U = 10X^2Y$ for $X, Y > 0$

Budget Constraint : $M = P_xX + P_yY$

Where : X – Quantity of Good X

Y – Quantity of Good Y

P_x – Price of Good X

P_y – Price of Good Y

M – Budget of the consumer.

- a) Derive the demand functions for Good X and Good Y using the Lagrangian method. [15 Marks]
- b) If the price of Good X is E2 per unit, the price of Good Y is E4 per unit, and the consumer’s income is E840, find the utility maximizing levels of X and Y. [6 marks]
- c) What is the maximum level of utility? [4 marks]

SECTION B

QUESTION 4

The cost function for a perfectly competitive firm in the short-run is given as follows:

$$C = Q^3 - 5Q^2 + 100Q + 180$$

- i) Calculate the profit maximizing output level for this firm if $P = E120$. (10)
- ii) Derive the supply function for this firm and explicitly show the boundaries of the supply function. (10)
- iii) Provide a rough sketch of the supply function you derived in ii). (5)

QUESTION 5

Two firms in Matsapha produce cheese that has the same taste. These firms are Parmalat Swaziland and Nutriday Swaziland. The profit of each firm depends on its own output level and that of the rival firm, and these profit functions are expressed as follows:

$$\Pi_p = 24Q_p - Q_p^2 - 2Q_n^2 - 8$$

$$\Pi_n = 30Q_n - 3Q_n^2 - 2Q_p - 9$$

- i) What kind of market structure are the two firms operating in? (2)
- ii) What will be the output level in each firm? (10)
- iii) Derive the profit for each firm. (3)
- iv) Calculate the firm's profit and output levels if these two firms collude / form a cartel in order to maximise joint profits. (10)

QUESTION 6

Write short explanatory notes on the following concepts: (5 marks each)

- i) Short-run supply curve under perfect competition.
- ii) Prove that for a monopolist, the marginal revenue is always below the demand curve.
- iii) Differentiate between Cournot behaviour and Bertrand behaviour.
- iv) In the short-run a perfectly competitive firm will continue with production even though it cannot cover all its average costs. Graphically illustrate and explain the condition under which this statement is true.
- v) What forms the basis for monopoly power?