

**UNIVERSITY OF SWAZILAND
FACULTY OF SOCIAL SCIENCES
DEPARTMENT OF ECONOMICS**

MAIN EXAMINATION PAPER : DECEMBER 2015

TITLE OF PAPER : MICROECONOMICS

COURSE CODE : ECON 201/ IDE ECON 201

TIME ALLOWED : THREE (3) HOURS

INSTRUCTIONS :

- 1. ANSWER FOUR (4) QUESTIONS; TWO(2) FROM SECTION A AND TWO (2) FROM SECTION B.**
- 2. ALL QUESTIONS CARRY TWENTY FIVE (25) MARKS**

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SECTION A - (ANSWER ANY TWO (2) QUESTIONS FROM THIS SECTION)

Question 1

(Total Marks = 25)

- a) Write short explanatory notes on the following concepts:
- i) Economies of scope
 - ii) Law of Diminishing Returns to a factor input
 - iii) Consumer Surplus (illustrate on a graph) [4 Marks Each]
- b) Discuss three (3) properties/features of indifference curves and link each one of them to the characteristics of a rational consumer. [6 marks]
- c) Illustrate and explain the effect (substitution and income) of a price decrease for an inferior good. [7 Marks]

Question 2

(Total Marks = 25)

The production function for a Futhi's fish and chips company is: $Q = 100K^{0.5}L^{0.5}$

Where Q = fish and chips packets, K = number of deep fryers, and L = number of workers. Let the price of deep fryers (K), be denoted by r , and the price of labour (L), be denoted by w . The total expenditure on deep fryers and labour is denoted by C .

- a) Illustrate graphically how the optimum combination of inputs is determined to yield maximum output at the least cost for the firm. [5 Marks]
- b) Set up a Lagrangian function for the optimisation problem. [2 Marks]
- c) Obtain the first order conditions for maximisation of output subject to the expenditure constraint and find the optimum functions for deep fryers and number of workers. [10 Marks]
- d) If the price of a deep fryer per unit is $r = E200$, the price of labour (wage per day) $w = E80$, and the total expenditure amount available to the firm is $C = E4000$, find the input mix that will maximise output. [5 Marks]
- e) How many fish and chips packets would Futhi's Fish and Chips supply per day? [3 Marks]

Question 3

(Total Marks = 25)

- a) Complete the table below (provide the formulas used to obtain the figures) [5 Marks]

| OUTPUT(Q) | TFC | MC | TVC | TC | AVC |
|-----------|-----|----|-----|----|-----|
| 0 | 50 | - | | | |
| 1 | | 60 | | | |
| 2 | | 50 | | | |
| 3 | | 60 | | | |

Where TFC is total fixed cost, MC is marginal costs, TVC is total variable costs, TC is total cost, and AVC is average variable cost. (Note that these are costs in the short run)

- b) There is an inverse relationship between productivity and costs of production. Show this relationship both diagrammatically and algebraically. [12 Marks]
- c) "Short run average costs of production will always exceed long run average costs." Using an appropriate diagram, illustrate and explain to prove that this statement is true.

[8 Marks]

SECTION B - (ANSWER ANY TWO (2) QUESTIONS FROM THIS SECTION)

Question 4

- i) Choose the correct answer from the following multiple choice questions: (one mark each
1. The market demand curve in a perfectly competitive market is :
 - A. Negatively sloped
 - B. Horizontal line
 - C. Positively sloped
 - D. Vertical line
 2. The marginal revenue of a firm in a perfectly competitive market is equal to:
 - A. The revenue minus total cost
 - B. Total cost minus total revenue
 - C. The slope of the average revenue curve
 - D. The slope of the total revenue curve
 3. Which of the following are characteristics of a perfectly competitive firm in the long run?
 - A. Economic profits are zero
 - B. Price is equal to marginal costs
 - C. Price is equal to minimum average total costs
 - D. The number of firms in the industry is neither rising nor falling.
 - E. All of the above are correct
 4. The supply curve of a perfectly competitive firm is equal to the:
 - A. Positively sloped part of the marginal cost curve
 - B. MC curve equal to and above the minimum turning point of the ATC curve
 - C. MC curve equal to and above the minimum turning point of the AVC curve
 - D. MC curve between the minimum turning points of the AVC and the ATC curves
 5. A monopoly is a market structure where there is:
 - A. Only one seller
 - B. Only one buyer
 - C. Only one buyer and one seller
 - D. No room for more than one firm
 6. A monopoly has market power. If the monopoly operates in a way such that $MR = MC$, it will:
 - A. Maximize profits
 - B. Minimize losses
 - C. Maximize sales

- D. Normally maximize profits, but it could operate at a loss
7. A firm operates as a natural monopoly. If the government intervenes and another firm enters the industry:
- A. Prices in the market will decrease
 - B. Prices in the market will increase
 - C. Sales in the market will increase
 - D. Sales in the market will remain the same
8. Compared to the Perfectly competitive firm, a monopoly's
- A. Price is higher
 - B. Output is lower
 - C. Profits are larger
 - D. All of the above mentioned are correct
 - E. A and B are correct
9. In order to maximize profits, a monopolist should produce
- A. Where price equals marginal cost
 - B. Where marginal revenue equals marginal cost
 - C. Where marginal revenue exceeds price
 - D. Where the industry demand curve intersects the monopoly marginal cost curve
10. Which of the following is/are not part of the demand curve for a monopolist?
- A. Downward – sloping
 - B. Always inelastic
 - C. the same as the market demand
 - D. The monopolistic supply curve
 - E. Both A and C are correct
- ii) Compare and contrast perfect competition and monopoly in the short – run, show explicitly mathematically how profits are maximised in each market.

(15)

Question 5

MTN Swaziland is one example of a government sponsored monopoly in Swaziland. MTN sells cellular network products in two markets (the public and industries). The demand function for the public is

$Q_1 = 1200 - 10P_1$. The demand function for industries is $Q_2 = 800 - 10P_2$. MTN's total cost function is

$C = 50Q + 10,000$. MTN is therefore able to discriminate between these two markets such that $Q = Q_1 + Q_2$. **Note:** that subscript 1 is for the public and subscript 2 is for the industries.

- i) Calculate the quantities that MTN will distribute in each market. (10)
- ii) What will be the price level in each market? (5)
- iii) Calculate the overall profit for the monopolist. (5)
- iv) Calculate the total costs that MTN will incur? (5)

Question 6

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

- i) Cartel
- ii) Characteristics of Oligopoly
- iii) Equilibrium condition for Perfect Competition
- iv) Cournot behavior
- v) Short-run supply curve under perfect completion