

UNIVERSITY OF SWAZILAND

DEPARTMENT OF ECONOMICS

SUPPLEMENTARY EXAMINATION 2008

TITLE OF PAPER: INTRODUCTION TO MICROECONOMICS – IDE

COURSE CODE: ECON 201

INSTRUCTIONS:

- 1. ANSWER ANY FOUR QUESTIONS.**
- 2. ALL QUESTION CARRY 25 MARKS EACH.**

TIME ALLOWED : THREE (3) HOURS

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Question 1

The following data pertain to a perfectly competitive firm in the short run. The data show output obtainable at the different levels of employment of the labour input:

<u>LABOUR</u>	<u>OUTPUT</u>
1	10
2	15
3	25
4	35
5	40
6	44
7	47
8	49
9	50

Given that labour is paid a wage rate of E10 per unit, fixed costs are E100, and that the price of output is E5 per unit:

- (a) Determine the level of output at which this firm will produce
[10 marks]
- (b) Using the marginal productivity concept, determine the amount of labour that this firm should hire.
[10 marks]
- (c) Indicate the amount of profit for the firm at the profit maximizing output level.
[5 marks]

Question 2

(a) The following table shows levels of output and associated marginal costs. Given that the firm's total fixed costs are E200. Complete the table with figures of Total Variable Costs (TVC), Total Costs (TC) Average Variable Costs (AVC) and Average Total Costs (ATC) (show work):

OUTPUT	MC (E)	TVC (E)	TC (E)	AVC (E)	ATC (E)
0	-				
1	60				
2	50				
3	60				

4	200				
5	300				

[8 marks]

(b) Show mathematically that in conventional cost theory, when the Average Cost (AC) is increasing, the marginal cost curve lies above the AC curve.

[10 marks]

(c) Distinguish between the Law of Diminishing Returns and the Laws of Returns to Scale.

[7 marks]

Question 3

(a) With the aid of diagrams, compare and contrast two different models of price discrimination. What are the effects of Price discrimination on society welfare?

[10 marks]

(b) Given the following demand functions of segmented markets:

$$Q_1 = 32 - 0.4P_1$$

$$Q_2 = 18 - 0.1P_2$$

Assume that the **total cost** function is

$$C = 50 + 40Q$$

Where $Q = Q_1 + Q_2$

(i) find profit maximizing levels of output and prices:

[10 marks]

(ii) Suppose the firm could not practice price discrimination what would be the profit maximizing price and quantity levels? [5 marks]

Question 4

a) Distinguish between profit maximization under conditions of monopolistic Competition and Oligopoly [15 marks]

The demand function of a profit maximizing monopolist is

$$Q + 2P = 40$$

And his average cost function is

$$AC = 20 Q^{-1} + 4$$

At what output level will the firm maximize profit? [10 marks]

Question 5

(a) A firm's isoquant curve is given by

$$Q = L^{2/5} K^{3/5}$$

Where Q = level of output

L = labour input

K = capital input

Assume $P_L = 2$, $P_K = 3$

Where P_L = price of labour

P_K = price of capital

Utilizing the Lagrangian Method, calculate the minimum level of costs that is necessary to produce $Q = 12$. [15 marks]

(b) Consider the following information for a profit maximising perfectly competitive firm:

$$P = MR = E60$$

$$TC = 4000 + 204Q - 3Q^2 + 0.02Q^3$$

Where P = price of product

MR = marginal revenue

TC = short run total cost

Q = Units of output produced per month

(i) Determine the optimal level of output. [10 marks]

Question 6

a) With the aid of diagrams describe how the employment and pricing of a resource is determined under the following scenarios; indicate clearly the type of exploitation the input is subjected to in each case:

i) Inputs are sourced from a perfectly competitive industry but output is distributed by a monopoly firm. [8 marks]

ii) Both input and output markets are imperfectly competitive [17 marks]

Question 7

The market demand function for a firm is given by

$$8P + Q - 64 = 0$$

and the firm's average cost function takes the form

$$AC = 8/Q + 6 - 0.4Q + 0.08Q^2$$

Determine the level of output Q, which

- (i) Maximises the firm's total revenue [8 marks]
- (ii) Maximises the firm's profits [9 marks]
- (iii) Minimises the firm's marginal cost [8 marks]