UNIVERSITY OF SWAZILAND

DEPARTMENT OF ECONOMICS

SUPPLEMENTARY EXAMINATION 2009/2010

TITLE OF PAPER	**:**	**MICROECONOMICS**
COURSE CODE	**:**	**ECON 201(FT)/ECON 201(IDE)**
INSTRUCTIONS	**:**	**1. ANSWER TWO QUESTIONS IN SECTION A AND TWO QUESTIONS IN SECTION B**
		2. ALL QUESTIONS CARRY 25 MARKS EACH
		3. DECIMAL NUMBERS ARE TO BE ROUNDED TO TWO(2) DECIMAL PLACES
TIME ALLOWED	**:**	**THREE (3) HOURS**

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Question 1

a) Write short explanatory notes on the following concepts and include diagrams where necessary:

i) Economies and Diseconomies of Scale [5 marks]

ii) Long run expansion path [5 marks]

iii) Economies of scope [5 marks]

b) Algebraically demonstrate the inverse relationship between average variable cost and productivity, and also marginal cost and productivity in the short run. [10 marks]

Question 2

a) Given the following information for a perfectly competitive firm:

$P = MR = E96$

$TC = 400 + 24Q + 3Q^2 + 2Q^3$

Where P = price of the product

MR = marginal revenue

TC = short run total cost

Q = units of output produced per year

Determine the profit maximising level of output. [10 marks]

b) A firm's isoquant curve is given by:

$Q = 2K^{\frac{2}{5}}L^{\frac{3}{5}}$

Where Q = Level of output

L = Labour input

K = Capital input

If P_L = E2 and P_K = E3 (where P_L and P_K are prices of labour and capital respectively).

Using the Lagrangian method, calculate the minimum level of cost that is necessary to produce 12 units of output (Q = 12). [15 marks]

Question 3

a) Distinguish between income elasticity of demand and cross price elasticity of demand. [5 marks]

b) Economists have estimated the following elasticities. For each pair give a possible reason why the elasticities differ.

i) Elasticity of demand for buses is 0.23 during peak hours and 0.9 during off-peak hours. [2.5 marks]

ii) Elasticity of demand for buses is 0.7 in the short run and 1.5 in the long run. [2.5 marks]

c) The market demand and supply functions for a particular product are:

$P = \frac{75}{(1+Q)^2}$ *and* $P = 2 + \frac{Q^2}{16}$, respectively.

If the market price is E3, calculate the corresponding consumer's and producer's surplus. [15 marks]

Question 4

a) Costs of production will always be higher in the short run as compared to the long run. Using a suitable graph, validate this statement. [10 marks]

b) Whether a firm wants to minimize costs given a target output or whether it wants to maximize output for a given cost outlay, it does not matter because the optimal bundle will be the same. Demonstrate that this statement is true using the Lagrangian method. [15 marks]

SECTION B

ANSWER ONLY TWO (2) QUESTIONS FROM THIS SECTION

Question 5

Suppose a company sells its product in two markets and has the following demand function:

$Market\ 1:\ Q_1 = 55 - 10P_1$

$Market\ 2:\ Q_2 = 23 - 2P_2$

Where Q = Output

P = Price

Overall costs of the product are as follows:

$TC = 80 + 1.5Q$

Where $Q = Q_1 + Q_2$

a) Calculate the profit maximizing prices and quantities for markets 1 and 2. [10 marks]
b) If the company would charge the same price in both markets, would it be better off or worse off. [9 marks]
c) Distinguish between first, second and third degree price discrimination. [6 marks]

Question 6

a) The market demand function for Mtsambama Pty LTD is given by:

$8P + Q - 64 = 0$

and the firm's average cost function is given by the following function:

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

i) Determine the level of output (Q) and price which maximizes the firm's total revenue. [8 marks]

b) The total costs of a firm are E500 when output is 100. If the total cost function is linear and fixed costs (FC) are E200:

i) Find the marginal cost (MC) when Q = 40 and Q = 50. Comment on the nature of the MC function. [8 marks]

ii) Determine the levels of total costs at each of the two output levels indicated in i) above. [9 marks]

Question 7

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. [10 marks]

ii) Both input and output markets are imperfectly competitive [15 marks]

Question 8

a) Using suitable graphs, determine how price and output is determined in a Stackelberg Oligopoly model. (Assume a duopoly market) [15 marks]

b) Algebraically derive the Stackelberg equilibrium price and quantity. Assume that all the firms have zero marginal costs. [10 marks]

"All the Best"