

UNIVERSITY OF SWAZILAND

DEPARTMENT OF ECONOMICS

FINAL EXAMINATION 2006

TITLE OF PAPER: INTRODUCTION TO MICROECONOMICS

COURSE CODE: ECON 201

INSTRUCTIONS: ANSWER FOUR QUESTIONS:
TWO QUESTIONS IN SECTION A
ONE QUESTION IN SECTION B
ONE QUESTION IN SECTION C

TIME ALLOWED: THREE(3) HOURS

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

SECTION A
ANSWER BOTH QUESTIONS IN THIS SECTION

Question 1

(a) An airline is considering an advance purchase fare to supplement its existing economy fare. It conducts a study to assess the likely patronage of such a fare. The table below summarizes the projected weekly sales of advance purchase tickets and economy class tickets. Given that the economy class fare is E200:

- I. Calculate the own price elasticity of advance purchase tickets when the fare rises from E100 to E180. [6 marks]
- II. What is the cross-price elasticity of economy tickets in response to advance fare increases from E50 to E150? [6 marks]
- III. Comment on the relationship between economy tickets and advance purchase tickets. [3 marks]

Advance Purchase Fare (E)	# of Advance Purchase Tickets	# of Economy tickets
50	2000	200
100	1200	400
120	900	500
150	600	600
180	200	1000

(b) The market demand and supply functions for a particular good are respectively:

$$P = 75(1+Q)^{-2}$$

And

$$P = 2 + Q^2/16$$

If the market price is $P = E3$, calculate the corresponding consumer's surplus and producer's surplus. [15 Marks]

Question 2

- (a) With the aid of diagrams briefly compare the following markets in determining their prices and levels of output:

Pure Competition

Pure Monopoly

[10 marks]

- (b) Distinguish between the concepts of Value of Marginal Product (VMP) and Marginal Revenue Product (MRP).

[6 Marks]

- (c) Explain and demonstrate, with the aid of a diagram, the concept of Monopolistic exploitation of a resource. As an Economist, explain how you would reduce this kind of exploitation.

[14 Marks]

SECTION B

ANSWER ONE QUESTION IN THIS SECTION

Question 3

(a) How does a change in an input's price affect the various short run cost curves? Consider the case of both a fixed and a variable input's price.

[10 marks]

(b) Demonstrate, algebraically, that when the average cost curve is falling, the marginal cost curve lies below the AC curve.

[10 marks]

Question 4

(a) Explain the usefulness of the concept of cross price elasticity of demand in an industry.

[7 marks]

(b) With the aid of diagrams, for a linear demand curve, detail the kind of advice you would offer to a producer regarding the pricing of a product with a highly elastic demand and a large number of substitutes.

[13 marks]

Question 5

(a) Using a Cobb-Douglas production function of your choice, demonstrate how the e Marginal Rate of Technical Substitution (MRTS) is calculated and explain the meaning of the MRTS concept.

[10 marks]

b) Determine the degree of homogeneity of the production function in a) above and indicate its importance to Economists.

[10 marks]

SECTION C

ANSWER ONE QUESTION IN THIS SECTION

Question 6

An engineering firm is able to practice price discrimination in three markets whose demand functions are:

$$\text{Market 1} \quad 0.2P_1 + Q_1 - 50 = 0$$

$$\text{Market 2} \quad 0.4P_2 + Q_2 - 60 = 0$$

$$\text{Market 3} \quad 0.2P_3 + Q_3 - 90 = 0$$

The Total Cost function of the firm is given by

$$TC = 1500 + 14 Q$$

Where $Q = Q_1 + Q_2 + Q_3$

If the firm wishes to maximize profits, determine the price that should be charged if the firm adopts:

- a) a policy of price discrimination [9 Marks]
- b) a policy of non-price discrimination [7 Marks]
- c) Which policy should the firm adopt (show work)? [4 Marks]

Question 7

(a) The market demand function facing a firm is given by

$$4P + Q - 16 = 0$$

And the AC function takes the form

$$AC = 4/Q + 2 - 0.3Q + 0.05Q^2$$

Where AC = Average Cost, Q = Output, P = Price

Find the Q which gives:

- i) Maximum revenue [4 marks]
- ii) Minimum marginal cost [4 marks]
- iii) Maximum profits [4 marks]

(b) A firm's total costs are E500 when output is 100. If the TC function is linear and fixed costs(FC) are E200:

i) Find the marginal cost (MC) at $Q = 40$ and $Q = 50$ and comment on the nature of the MC function

[4 marks]

ii) Determine the levels of total costs at each of the two output levels indicated in i) above

[4 marks]

Question 8

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 [6 marks]

(b) Using the marginal productivity concept, determine the amount of labour that this firm should hire.

[6 marks]

(c) Indicate the amount of profit for the firm at the profit maximizing output level.

[4 marks]

(d) With the aid of a diagram, briefly describe the conditions which determine whether a firm operating at a loss in the short run should continue to produce.

[4 marks]
