



**EASTERN UNIVERSITY, SRI LANKA**  
**FACULTY OF COMMERCE AND MANAGEMENT**  
**FINAL YEAR FIRST SEMESTER EXAMINATION IN COMMERCE**  
**2008/09-SEPTEMBER 2009 (Proper)**  
**DBE4123 Managerial Economics**

**Answer all Questions**

**Time: 3 hours**

1. (a) Briefly Explain the Iso - cost and Isoquant. (5 Marks)

(b) A Production function for a firm has the following relationship between the level of out put (Q) and the levels of capital (K) and labor (L)

$$Q = 4KL + 3L^2 - (1/3)L^3$$

1. Find the Isoquant equation for  $Q = 100$ . (3 Marks)
2. Derive the function that gives the slope of the Isoquant (in terms of quantities of K and L). (4 Marks)
3. Derive the marginal product of labor function from the preceding production function if K is fixed at 5 units. (8 Marks)

2. A firm has estimated the following demand function for its product:

$$Q = 2,000 - 50P + 40P_y + 0.01I$$

- a.  $P_y$  is the price of a related good, and I, is household income. If these are respectively,  $P_y = \$30$  and  $I = 40,000$ , what is the Q equation for the firm's demand curve? (2 Marks)
- b. Given the information above, find the firm's average revenue or price equation for the demand curve. (2 Marks)
- c. What is the firm's total and marginal revenue equation? (4 Marks)
- d. At what quantity sold will MR equal zero? (4 Marks)
- e. What will be maximum total revenue the firm can obtain? (4 Marks)
- f. Calculate the price elasticity of demand when the price is \$50 and interpret the results.

(4 Marks)

3. (a) How monopoly markets differentiate from the perfect competition market? (5 Marks)

(b) The producer has a possibility of discriminating price between domestic and foreign markets for a product where the demands respectively are,

$$Q_1 = 21 - 0.1P_1$$

$$Q_2 = 50 - 0.4P_2$$

$$TC = 2000 + 10Q$$

$$\text{where } Q = Q_1 + Q_2$$

Find whether the price discrimination practice makes more profits for the firm. (15 Marks)

4. Use the simplex method to solve the followings LP problem.

$$\text{Maximize } Y = 3a_1 + 5a_2 + 4a_3$$

$$\text{Subject to } 2a_1 + 3a_2 \leq 8$$

$$2a_2 + 5a_3 \leq 10$$

$$3a_1 + 2a_2 + 4a_3 \leq 15$$

$$a_1, a_2, a_3 \geq 0$$

(20 Marks)

5. (a) Explain how forecasts involving aggregate economic variables can be useful to a business man. (04 Marks)

(b) What is the difference between time series data and cross-sectional data? (04 Marks)

(c) Explain the various forecasting methods. (04 Marks)

(d) Suppose a firm estimates its general demand relation to be

$$Q = 250 - 15P + 0.01M - 4P_R$$

Where Q is quantity demanded, P, is price M, is income, and  $P_R$  is the price of a good related in consumption

What type of good is this? Why? What type is related good? Why? (4 Marks)

e. The firm obtains forecasts of the exogenous variables, M and  $P_R$ , 18 month in the future the forecasts are  $M = \$ 50,000$  and  $P_R = \$ 100$ . Find the forecast demand equation for 18 months. (04 Marks)