UNIVERSITY OF COLOMBO, SRI LANKA

FACULTY OF MANAGEMENT AND FINANCE

Bachelor of Business Administration (Level II – Semester V)
Examination June, 2017

MKT/ACT/HLM/FIN/HRM 2216
BEC/INB/ 2200

Managerial Economics

Three **(02)** Hours

Answer **Four (04)** Questions

Use of calculators is allowed

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1. Consider the demand function given below for good X.

$$Q_X = 25 - 3.5P_X + 0.8I + 2.5P_Y - 0.6P_S + 1.5A$$

where: P_X is price of the good, I is consumer per capita income, P_Y is the price of good Y, P_S is the price of good S and A is advertising expenditure on good X.

i. Derive the demand function for good X when I = R_S 20,000, P_Y =Rs 50, P_S= Rs 40, and A= Rs 50,000. (05 Marks)

ii. Interpret the intercept and slope parameters of the demand function derived in part i. (05 Marks)

iii. Sketch a graph of the demand function derived in part i. (02 Marks)

iv. Identify the factors that cause the demand and the quantity demanded to increase. (03 Marks)

v. Calculate and interpret demand elasticities with respect to each of the independent variables in the demand function. (05 Marks)

vi. Forecast the demand for this good during the next period if the firm will increase P_X by 6%, A by 15%, and expect that I will go up by 4%, P_Y will increase by 7% and Ps will fall by 8%. (05 Marks)

(Total 25 marks)

2. i. Explain the relationship between the marginal returns and the stages of production in the short run.

(05 Marks)

ii. A passenger transport company in a city has estimated the following Cobb-Douglas production function using monthly observations for the past four years.

$$\text{Ln } Q = 2.303 + 0.40 \ln K + 0.60 \text{ Ln } L + 0.20 \ln G$$

$$(3.40) \qquad (4.15) \qquad (3.05) \qquad R^2 = 0.94$$

where: Q is the number of miles driven, K is the number of buses the company operates, L is the number of bus drives it employes, and G is the gallons of gasoline it uses. The standard deviations of the slope parameters are given in the parantheses.

a. Comment on the statistical validity of the estimated slope parameters. (08 Marks)

b. Find output elasticity of L and G of the estimated production function and intepret them. (05 Marks)

c. What type of returns to scale is experienced by this company? (02 Marks)

iii. Identify the reasons for internal and external economies of scale. (05 Marks)

(Total 25 marks)

3. Wisdom company, a price-setting firm, produces tennis balls and estimates its demand for its products using the following linear specification:

$$Q = a + bP + cM + dP_R$$

where; Q is the number of tennis balls sold quarterly, P is the wholesale price Wisdom charges for a tennis ball, M is the consumers' average household income, and P_R is the average price of tennis rackets. The regression results are as follows;

DEPENDENT VARIABLE: Q	R-SQUARE	F-RATIO	P-VALUE ON F
OBSERVATIONS: 20	0.8435	28.75	0.001

VARIABLE	PARAMETER ESTIMATE	STANDARD ERROR	T-RATIO	P-VALUE
INTERCEPT	425120.0	220300.0	1.93	0.0716
P	237260.6	12587	222.96	0.0093
M	1.49	0.3651	4.08	0.0009
PR	21456.0	460.75	23.16	0.0060

i. Discuss the statistical significance of the parameter estimates *a, b, c*, and *d* using the *P*- values. Are the signs of *b. c* and *d* consistent with the theory of demand?

(10 Marks)

ii. If Wisdom plans to charge a wholesale price of Rs 1.65 per ball , the average price of a tennis racket is Rs 110, and consumers' average household income is Rs 24,600,

a. Find the estimated number of tennis balls demanded?

(05 Marks)

b. What will happen, in percentage terms, to the number of tennis balls demanded if the price of tennis balls decreases by 15 percent? (05 Marks)

c. What will happen, in percentage terms, to the number of tennis balls demanded if the average price of tennis rackets increases 25 percent? (05 Marks)

(Total 25 marks)

4. i. Define the concepts of risk and uncertainty. (05 Marks)

ii. How a manager chooses one investment project out of two alternatives with an equal expected profit? Explain your answer by using suitable criteria/s (05 Marks)

iii. What are the shapes of utility function of money for risk averse, risk neutral and risk loving managers? (05 Marks)

iv. Suppose that there is a project with expected net cash flow of Rs. 55,000 for the next six years and initial cost is Rs 200,000. Risk free discount rate is 8% and Risk premium is 10%. Find risk adjusted Net Present Value (NPV) of the project. (05 Marks)

v. If the value of certainty equivalent coefficient is 0.75, what would be the NPV of the same project above in part iv. (05 Marks)

(Total 25 marks)

5. A firm in a competitive market charges unit price of Rs. 115 for its product. The fixed cost of the firm is Rs. 4500 and estimated marginal cost function is:

$MC = 125 - 0.42Q + 0.0021Q^2$

i. Find average variable cost function (AVC) of the firm. (05 Marks)

ii. At what level of output AVC reaches its minimum? What is the Minimum AVC? (05 Marks)

iii. Should the manager of the firm continue or shutdown? Explain why they have to do what you suggest. (05 Marks)

iv. Find the optimum level of output of the firm. (05 Marks)

v. Find Profit/loss of the firm. (05 Marks)

(Total 25 marks)

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Relevant formulas

$$Q = \frac{-b \mp \sqrt{b^2 - 4ac}}{2a}$$

$$NPV = \sum_{t=1}^{n} \frac{\alpha R_t}{(1+r)^t}$$

$$NPV = \Sigma \frac{Rt}{(1+k)}$$