EASTERN UNIVERSITY, SRI LANKA.
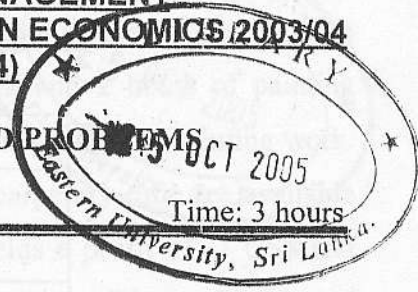## FACULTY OF COMMERCE AND MANAGEMENT
FINAL YEAR FIRST SEMESTER EXAMINATION IN ECONOMICS 2003/04
(November/December 2004)

ECN 4034 – ECONOMIC ANALYSIS AND PROBLEMS

Answer all questions.   Time: 3 hours

1. Describe the following;

    i.   Micro and Macro economic analysis.

    ii.   Slack variable and decision variable.

    iii.   Social welfare function

    iv.   Partial equilibrium and general equilibrium

    v.   Survey method.

                                                                      (4x5 Marks)

2.. i.   Suppose Y is related to R and S in the following non- linear demand function.

$$Y = a \, R^b . S^c \quad (b>0, c>0)$$

How can this non-linear equation be transferred into a linear form?

                                                                      (4 Marks)

    ii.   The demand function for a good is specified as

$$Q = 200 \, P^{-1.5} \, M^{0.8} \, Pr^{-1.2}$$

Where Q is quantity demanded of the good, P is the own price of the good, M is the disposable income, Pr is the price of good R

Using partial derivatives find the price elasticity, income elasticity and cross price elasticity.

                                                                      (6 Marks)

    iii.   Demand for patient surgery at a general hospital has increased steadily in the past few years as shown in table below.

year	Actual number of surgeries
1999	45
2000	50
2001	52
2002	56
2003	58
2004	-

The Director of Medical Surgeries predicted six years ago that the demand in year 1 would be 42 surgeries using exponential smoothing method. Develop forecast from year 2 through year 6 (smoothing consent $\alpha = 0.2$)

(10 Marks)

3. i.   Consider a production function $Q = A. L^{\alpha} K^{\beta}$ and find the production elasticity of labour (L) and capital (K).

(4Marks)

ii. Determine whether the following production functions exhibit increasing returns to scale, decreasing returns to scale or constant returns to scale.

    a. $Q = \alpha L^{\beta} K^{1-\beta}$

    b. $Q = 2XY$

(8 Marks)

iii. suppose that for a given time period a firm focuses the following demand function

$$Q = 75 - 0.5 P$$
$$TC = 500 + 30 Q - 3Q^2 + (1/3) Q^3$$

    a. what is the MR equation for this firm

    b. Find the sales quantity that would maximize the profit.

(8 Marks)

4. Jeya Furniture Company in USA produces inexpensive table and chairs. The production process for each is similar in that both require a certain number of hours of carpentry work and certain number of labour hours in the painting department. Each table takes 4 hours carpentry work and 2 hours of painting work. Each chair requires 3 hours of carpentry work and 1 hour of painting work. During the current production period 240 hours of carpentry time are available and 100 hours in painting department. Each table yields a profit of 7 US$ and each chair is sold for at 5 US$ profit. Determine the best possible combination of tables and chairs to produce in order to maximise profit by Formulating LP Model for this problem. (Use Simplex method)

(20 Marks)

5. i.   What is meant by Paretro optimum?

(3 Marks)

ii. Explain the marginal criteria for Paretro efficiency in consumption and production.

(10Marks)

iii. Explain the conditions that may lead to inefficiencies in consumption and production.

(7 Marks)

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