MASENO UNIVERSITY

UNIVERSITY EXAMINATIONS 2015/2016

FIRST YEAR SECOND SEMESTER EXAMINATIONS FOR THE
DEGREE OF MASTER OF ARTS IN ECONOMICS

CITY CAMPUS - WEEKEND

AEC 801: ADVANCED MICRO ECONOMICS

Date: 1st MAY 2016   Time: 8.00 - 11.00 am

INSTRUCTIONS:

• Answer ANY FOUR questions.

1. Suppose there are two goods x_1 and x_2 and their prices are given as p_1 and p_2 respectively, if the consumer's original budget constraint is given as $M_1 = p_1x_1 + p_2x_2$ while his budget constraint after the Slutsky compensating variation in income has been carried out is given as $M_2 = p_1^*x_1 + p_2x_2$, assuming further that demand for x_1 is $x_1 = x^d(p_1, p_2, M)$. Required:

(a). Determine change in demand due to Slutsky substitution effect. (2marks)

(b). Establish demand curve for good x_1 holding income constant. (3marks)

(c). Prove that $\Delta M = x_1 \Delta p_1$. (3marks)

(d). Show that Slutsky equation from the problem above will be;

$$\frac{\Delta x_1}{\Delta p_1} = \frac{\Delta x_s}{\Delta p_1} - \frac{\Delta x_M}{\Delta M} x_1,$$ where Δx_s and Δx_M are substitution and income effects

of the price change respectively. (7marks)

2. (a). Explain why a firm in perfect competition may continue in the production of goods which it can only sell at a loss and why it cannot continue doing this indefinitely. (5marks)

(b)(i). The short-run total cost curve for a firm is given as $C = 10 + 6q - 2q^2 + \frac{1}{3}q^3$.

Derive the firm's supply function. (5marks)

(ii). If there are 200 identical firms operating in the market for the commodity produced by the firm, find the market supply function. (5marks)

3. (a). Suppose a rational consumer's utility model is given as $U = \psi(q_1, q_2) = q_1^{0.6}q_2^{0.4}$, assuming further that the consumer's budget constraint is specified as :
$M_* = p_{q_1}q_1 + p_{q_2}q_2$, where P_{q_1} and P_{q_2} are the unit prices of the goods q_1 and q_2 respectively.

(i). Determine the demand for each of the goods. (6marks)

(ii) Are the two goods normal or superior goods? Explain your answer. (2marks)

(iii). If the consumer's utility curve passes through point (30, 60) determine the marginal rate of commodity substitution associated with that point. (3marks)

b) Explain why the compensated Hicksian demand curve cannot be upward-sloping. (4marks)

4. (a). Discuss how the theory of second best choice is applicable in production decision by a private firm. (7marks)

(b). Derive and explain the conditions for Pareto efficiency as used in welfare economics. (8marks)

5(a). Given the following demand and cost functions of two firms I and II,
$p = 90 - 0.1(q_1 + q_2), c_1 = 0.1q_1^2, c_2 = 0.1q_2^2$

  Where: p = price, q_1 = quantity produced by firm I,
      q_2 = quantity produced by firm II,
      c_1 and c_2 are cost functions of firm I and II respectively.

(i). Determine their reaction functions.   (5marks)
(ii). Determine equilibrium output levels of the duopolists.   (4marks)

(b). With the help of a diagram, show that monopoly form of market structure may be socially undesirable.   (6marks)

6. The table below shows transportation problem of a utopian economy;

	W1	W2	W 3	W 4	Supplies
Factory 1	96	120	112	116	280
Factory 2	90	110	106	120	520
Factory 3	100	130	120	124	720
Demand	400	640	500	420	

(a). Find the basic feasible solution using Least Cost Method.   (6marks)

(b). Determine the basic feasible solution using North West Corner Method.

(3marks)

(b). Explain the limitations of using mathematical models to address transport problems.   (6marks)