



**MASENO UNIVERSITY**  
**UNIVERSITY EXAMINATIONS 2013/2014**

FIRST YEAR FIRST SEMESTER EXAMINATIONS FOR THE  
DEGREE OF MASTER OF SCIENCE IN FINANCE  
(HOMA BAY CAMPUS & CITY CAMPUS - WEEKEND)

**AEC 801: ADVANCED MICROECONOMICS**

Date: 19<sup>th</sup> July, 2014

Time: 9.00 – 12.00 noon

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**INSTRUCTIONS:**

- Answer ANY FOUR questions.
- Each question carries 15 marks.



1. (a). Assuming a rational consumer's utility model is given as  $U = f(X_1, X_2) = K$ ,  
Where "K" = constant. Assuming further that the consumer's fixed income is  $I$  and unit prices of the goods are  $X_1 = P_{x_1}$  and  $X_2 = P_{x_2}$ ,
- (i). Determine the opportunity cost of purchasing good  $X_1$  in terms of  $X_2$  and that of  $X_2$  in terms of  $X_1$ . (3marks)
- (ii). Show that at the optimum point,  $\frac{P_{x_1}}{P_{x_2}} = \frac{MU_{x_1}}{MU_{x_2}}$  (5marks)
- (iii). Assuming the utility function is re specified as;  $U = u(X_1, X_2) = \lambda X_1^\alpha X_2^\beta$ ,  
determine the consumer's marginal rate of commodity substitution. (4marks)
- (iv). If the consumer's utility curve passes through point (140, 280) and that  $\lambda = 10$ ,  $\alpha = 0.8$ ,  $\beta = 0.6$ , determine the marginal rate of commodity substitution associated with that point (3marks)
2. (a). Hicksian demand curves cannot be upward-sloping. Explain with the help of a diagram. (3marks)
- (b). 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  $M_1 = p_1 x_1 + p_2 x_2$  while his budget constraint after the Slutsky compensating variation in income has been carried out is given as  $M_2 = p_1' x_1 + p_2 x_2$ , assuming further that demand for  $x_1$  is  $x_1 = x^d(p_1, p_2, M)$ . Required:
- (c). Determine change in demand due to Slutsky compensation. (4marks)
- (d). Establish demand curve for good  $x_1$  holding income constant. (3marks)
- (e). Derive Slutsky equation from the problem above. (5marks)
3. (a). Assuming that a firm's autonomous cost of production is given as  $\beta_0$  and the induced cost is  $\beta_1 Q$ , assuming further that the firm's total revenue is  $(R) = PQ$ , determine the output level at breakeven point. (3marks)
- (b). If the firm manager is considering introducing a new product and he has estimated that it will cost Ksh 400,000 per year in fixed costs to maintain the plant. Workers salaries plus suppliers of raw materials will cost Ksh 200 per output per year. If the firm charges Ksh 30 per output per month,
- (i). What quantity of the product should the firm produce in order to breakeven? (4 marks)
- (ii). Determine the firm's total revenue, total cost and total profit or loss at breakeven. (8 marks)

4. (a). Briefly explain the theory of the second best as used in welfare economics. (5marks).
- (b). Discuss the conditions for Pareto efficiency in production, consumption and the exists when it is impossible to make any economic agent better off without making the other worse off." In light of this statement, exhaustively discuss the Pareto optimal conditions that an efficient economy must fulfill. (10marks)

5. (a). Explain the meaning of the term "transport problem" as used in microeconomics. (2marks)
- (b). Distinguish between an infeasible transportation problem and a feasible transportation problem. (3marks)
- (c). The table below shows a transportation problem;

	Store A	Store B	Store C	Store D	Supplies
Firm A	48	60	56	58	140
Firm B	45	55	53	60	260
Firm C	50	65	60	62	360
<b>Demand</b>	<b>200</b>	<b>320</b>	<b>250</b>	<b>210</b>	

- (i). Determine the basic feasible solution using North West Corner Method. (5marks)
- (ii). Establish the basic feasible solution using Least Cost Method (LCM). (5marks)
6. (a). Using an illustration, show that a perfectly competitive firm can make losses in the short-run even when  $MC = MR$ . (4marks)
- (b). Explain the equilibrium of a firm in a perfectly competitive market and the long-run equilibrium of an industry. (4marks)
- (c). Consider a duopoly in case of two producers with inverse market demand function  $p(x) = 100 - 0.5x$ , and with cost functions,  $c_1(x_1) = 5x_1$ ,  $c_2(x_2) = 2.5x_2$
- (i). Determine both reaction functions  $R_1(x_2)$  and  $R_2(x_1)$ . (4marks)
- (ii). Determine the Cournot-equilibrium (3marks)