



# **MASENO UNIVERSITY**

## **UNIVERSITY EXAMINATIONS 2013/2014**

**SECOND YEAR FIRST SEMESTER EXAMINATIONS FOR THE  
DEGREE OF BACHELOR OF BUSINESS ADMINISTRATION,  
BACHELOR OF ARTS (ECONOMICS) AND BACHELOR OF  
SCIENCE (MATHEMATICS & ECONOMIC) AND BACHELOR OF  
SCIENCE (AGRI-BUSINESS MANAGEMENT) WITH  
INFORMATION TECHNOLOGY**

**(MAIN CAMPUS)**

### **AEC 201: INTERMEDIATE MICROECONOMICS**

*Date: 27<sup>th</sup> November, 2013*

*Time: 8.30 - 10.30 a.m.*

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#### **INSTRUCTIONS:**

- **Answer Question ONE (COMPULSORY) and any other TWO questions.**
- **Question one carries 30 marks and the rest 20 marks each.**

- 1 (a). "The axiom of diminishing marginal utility is based on a utopian mind".  
Discuss. (5marks)
- (b). Assuming that utility function of a rational consumer is given as  
 $U = f(X_1, X_2) = X_1^{0.3} X_2^{0.7}$ . If the consumer's utility curve passes through commodity bundles (20, 15), determine the consumer's marginal rate of commodity substitution. (6marks)
- (c). With the help of a well labeled diagram, explain the leisure income trade off and the need for higher overtime pay than the normal wage pay. (5marks)
- (d). (i). Explain the relationship between an Engel curve and demand curve for a given good. (3marks)  
(ii). Highlight any two uses of an Engel curve. (2marks)
- (d). (i). Explain the law of variable proportions as used in production analysis. (4marks)
- (ii). Assuming that the demand function for a firm is  $P = 100e^{-0.005x}$ , where "x" represents output. Determine the output level that will maximize the firm's revenue. (5marks)
2. (a). (i). Geometrically derive the average and marginal product curves of a variable factor of production. (4marks)  
(ii). Explain the association between the two curves in 2 (a) (i) above. (6marks)
- (b). Assuming that a monopolist demand curve is given by  $P = \beta_0 - \beta_1 Q$ , show that the firm's marginal revenue curve is not only downward sloping but is also twice as steep as average revenue curve even though they have the same intercept. (6marks)
- (c). Suppose a production function is given as  $Q = 10K^{0.4} L^{0.6}$ , determine  $MP_K$  and  $MP_L$  at K and L given as 4 and 8 respectively. (4marks)
3. (a). Distinguish between explicit and implicit costs of production. (4marks)  
(b). Geometrically derive and explain the shape of ATC, AFC, AVC and MC curves. (9marks)



(c). A firm's total cost function is given as  $TC = 400 + 100Q + 500Q^3$ , determine the firm's:

(iv) Average fixed cost. (2marks)

(v) Marginal cost function. (2marks)

(vi) Average total cost function. (3marks)

4. (a). Explain the meaning of the term "Pareto optimality". (3marks)

(b). Using a well labeled diagram, explain Pareto efficiency in exchange, detailing conditions for the efficiency. (17marks)

5. (a). Explain the substitution and income effects of a price change in the demand for an inferior good. (7marks)

(b). Assume a demand function for sugar is  $X_1 = 40 + \left(\frac{I}{40P_1}\right)$ . If originally his income is Ksh 180,000 per month and price of the sugar is Ksh 180, determine demand for the sugar. (1marks)

(c). Due to strengthening of the Kenya shilling, the price of bread falls to Ksh 120, compute the following;

(i). Total effect of the price change on the consumption of sugar. (2marks)

(ii). Substitution effect of the price change on the consumption of sugar. (2marks)

(iii). Income effect of the price change on the consumption of sugar. (2marks)

(d). Explain the revealed preference theory as observed by Samuelson. (6marks)