UGANDA MARTYRS UNIVERSITY

FACULTY OF SCIENCE
DEPARTMENT OF ECONOMICS

UNIVERSITY EXAMINATIONS
SEMESTER I, 2013/14

SECOND YEAR EXAMINATIONS FOR BACHELOR OF SCIENCE
(FM, B.ECON & GEN)

MICROECONOMICS II

DATE: 11^{TH} DECEMBER 2013
TIME: 2:00 - 5:00 PM

Instructions:
i) Read the question paper carefully.
ii) Answer only FOUR (4) questions.
iii) All questions carry equal marks.
iv) Use of relevant illustrations will be credited.

Question One

(a) Briefly explain the following economic concepts:

i. Effective demand (3marks)

ii. Elastic demand (3 Marks)

iii. Indifference Curve and marginal rate of substitution. (4 marks)

iv. Consumers Surplus (3 marks)

v. Isoquant (2 marks)

(b) Using the theory of demand, explain the factors that have led to an increase in demand for mobile phones and their accessories in Ugandan economy for the last two decade. (10Marks)

Question Two

(a) State the properties of the indifference curve. (7Marks)

(b) Given the consumer's utility function (U) depends on consumption of two products X and Y subject to his fixed budget constraint $B=P_xX + P_yY$, show that the condition for utility maximization is such that the ratios of marginal utilities of the two products X and Y equals to ratio of their respective constant prices P_x and P_y. (8 marks)

(c) If the consumer's utility function $U= X^{0.5}Y^{0.5}$ is subject to the fixed budget B=\$100 that is spent on two products X and Y whose fixed prices are P_x =\$10 and P_y= \$25 respectively. Determine the optimal values of X and Y at which utility (U) is maximized. Hence, compute the values of maximum utility (U) and marginal rate of substitution. (10Marks)

Question Three

(a) If the market demand function is $P_d = 25 - Q^2$ and its supply function is $P_s = 1 + 2Q$,

(i) Find the equilibrium quantity and price. (5 Marks)

(ii) Find price elasticity of demand at equilibrium point. (4 Marks)

(iii) Find the values of consumer's surplus and producer's surplus. (6 Marks)

(b) Explain how elasticity of demand is applied in an economy. (10 Marks)

Question Four

a. Using the theory of the firm, state any five objectives of the firm. (5 Marks)

b. Show that the marginal revenue (MR) and marginal cost (MC) of the firm are equal at its profit maximizing output level. (5 Marks)

c. Given that TR and TC are functions of output (Q) such that $TR = 500Q - 5Q^2$ and $TC = Q^2 + 20Q + 100$; find:

(i) The expressions for marginal revenue (MR) and marginal cost (MC).(4 marks)

(ii) The output level at which profits are maximized. Hence determine the maximum profits. (4Marks)

d. Given that Total Revenue TR = PQ. Show that Marginal Revenue $MR = P(1 - 1/\mathcal{E}_p)$, where $\mathcal{E}_p$ is the price elasticity of demand for the product. (7Marks)

Question Five

(a) Briefly explain the concept of marginal rate of technical substitution. **(5Marks)**

(b) Using the long run production theory, show that the producer is said to be in equilibrium situation when $MP_L/MP_K = P_L/P_K$. **(10Marks)**

(c) Given the short run production function $Q = 100 - 30L + 3L^2$, where Q is the output and L is labour used: (i) Find expressions for the marginal and average product functions of labor. (ii)Find the level of labour employed at which total production is at maximum. Hence determine the maximum total product. **(10 Marks)**

Question Six

(a) Explain with some illustrations the following concepts:

- (i) Income consumption curve
- (ii) Price consumption curve
- (iii)Transitivity in choice
- (iv) Isocost and isoquant
- (v) Prime costs and supplementary costs. **(15marks)**

(b) Define ~~is~~ a market and explain the common causes of market failure. **(10Marks)**

END