OLABISI ONABANJO UNIVERSITY, AGO-IWOYE
FACULTY OF SOCIAL AND MANAGEMENT SCIENCES
2015/2016 HARMATTAN SEMESTER EXAMINATION

Course Code /Title: ECO 301/Intermediate Microeconomics

Instruction: Attempt any four questions
Time Allowed: 2 Hours

1. (a) With the aid of well-labeled graphs and brief explanations, illustrate the substitution and income effects of a fall in price for: (i) normal good (ii) inferior good (iii) Giffen good **(12 marks)**

(b) Given a consumer's utility function $U = q_1q_2$ and a budget constraint equation: $Y = p_1q_1 + p_2q_2$ where p_1 is the price of good q_1 and p_2 is the price of good q_2. derive the consumer's Hicksian demand functions for goods q_1 and q_2. **(5.5 marks)**

2. (a) Given the utility function $U = f(X_1, X_2) = 5\log X_1 + 3\log X_2$ and $M = P_1X_1 + P_2X_2$, where money income of the consumer is N100, price of commodity X_1 is N10 and price of commodity X_2 is N2, determine:

(i) The quantities of X_1 and X_2 that maximise his utility. **(7 marks)**

(ii) What is the marginal utility of last naira spent by the consumer? **(2.5 marks)**

(iii) Show that the consumer actually maximized his utility **(4 marks)**

(b) With the aid of mathematical expression, illustrate the principle of equi-marginal utility **(4 marks)**

3(a) Given $q = AL^{\alpha}K^{1-\alpha}$ where L and K are variable inputs, show that total output would be exhausted if each input is paid its marginal physical product **(5 marks)**

(b) Show that elasticity of substitution equals one. **(7.5 marks)**

(c) With the aid of graphs and concise explanation highlight the relationship between long-run average cost and economies/diseconomies of scale. **(5 marks)**

4(a) Find the critical values for minimizing the costs of a firm producing two goods x and y when the total cost function is: $C = 5x^2 + 2xy + 3y^2 + 800$ subject to the production quota, $x + y = 39$ **(6 marks)**

(b) Given the inverse demand function of a multi-plant monopolist as $P = 50 - 0.25q$, where $q = q_1 + q_2$ and the cost facing the two plants as $C_1 = 5q_1$ and $C_2 = 0.125q_2^2$, determine:

(i) Equilibrium quantities to be produced in the two plants **(5 marks)**

(ii) Total profit of the monopolist **(3.5 marks)**

(c) Explain any **three** factors that could make monopoly power to arise **(3 marks)**

5(a) A discriminating monopolist's cost function is expressed as $C = 50 + 20q$ while his demand functions in two sub-markets are $P_1 = 80 - 5q_1$ and $P_2 = 180 - 20q_2$ respectively, determine:

(i) q_1 and q_2 **(4 marks)** (ii) p_1 and p_2 **(3 marks)** (iii) e_1 and e_2 **(4 marks)**

(iv) total output **(1.5 marks)** (v) total profit **(2 marks)**

(b) Explain any **three** conditions that could make price discrimination to occur **(3 marks)**.

(6) Explain the following economic concepts/terms:

(i) Input and output expansion paths **(4 marks)**

(ii) Marginal rate of commodity substitution **(2.5 marks)**

(iii) Linear isoquant and kinked isoquant **(4 marks)**

(iv) Perfect competition **(3 marks)**

(v) Isocost and Isoquant **(4 marks)**