OLABISI ONABANJO UNIVERSITY, AGO-IWOYE
FACULTY OF MANAGEMENT SCIENCES
DEPARTMENT OF ECONOMICS
2007/2008 HARMATTAN SEMESTER EXAMINATION

COURSE TITLE: INTERMEDIATE MICROECONOMICS
COURSE CODE: ECO 301
INSTRUCTION:- ANSWER QUESTION 1 AND ANY OTHER TWO QUESTIONS.
TIME ALLOWED:- 2 HOURS

1. Establish whether each of the following statements is true, false or ambiguous with explanation not exceeding 5 lines of your answer booklet or graphical/mathematical illustration(s).
   (a) A price discriminating monopolist maximizes profit when his output is produced at a point where $MC_1 = MC_2 = MR$. F, $MC = MR_1 = MR_2$.
   (b) When the elasticity of substitution coefficient ranges between zero and one, it implies that a change in input price ratio causes a more proportionate change in input ratio
   (c) For a homogeneous production function, the capital-labour ratio and the MRTS of the input constant along any of the isoclines.
   (d) When average cost is rising, the marginal cost is less than the average cost. F
   (e) Both the substitution and income effects are negative for a normal good. True
   (f) For a perfect competition, when marginal cost is less than marginal revenue, the firm needs reduce its output in order to maximize its profit. T
   (g) For a consumer to satisfactorily maximize his utility, his indifference should be convex to the origin. T
   (h) At the minimum point of the average variable cost curve, marginal cost is always less than average variable cost. T
   (i) The output expansion path is the locus of tangency between successive product functions and the iso-revenue lines when product prices are held constant. T
   (j) The demand function for a commodity usually has an inverse relationship with income and direct relationship with price. F

2. a. Given the utility function: $U = q_1q_2 - q_1^2$ where q_1 and q_2 are consumer goods with prices, P_1 and P_2 are prices of q_1 and q_2 and given as N30 & N60 respectively, if the consumer has a [illegible] of N18,000 to spend on these commodities, determine the quantities of q_1 & q_2 that maximize utility.
   b. State the properties of indifference curves.

3. Using the Cobb-Douglas production function, $Y = AL^{\beta}K^{1-\beta}$
   Derive: (a) MP (b) AP (c) MRTS
   (d) the input expansion path equation.
   (e) Is the function homogenous?

4. The cost function of a firm is expressed as $C = 75 - 22.5q + 5.5q^2$, if the market demand function = $120 - 1.8q$
   (a) Find the equilibrium output, price and the profit at this price if the firm is a perfect compe[illegible]
   (b) Will the output and price change if the firm were to be a monopolist?