CHUKA UNIVERSITY

UNIVERSITY EXAMINATIONS

SECOND YEAR EXAMINATION FOR THE AWARD OF DEGREE OF BACHELOR OF PURCHASING AND SUPPLIES MANAGEMENT

BBAM 201: INTERMEDIATE MICROECONOMICS

STREAMS: BPSM **TIME: 2 HOURS**

DAY/DATE: TUESDAY 23/4/2013 **11.30 .AM. – 1.30 P.M.**

INSTRUCTIONS:

Answer question 1 and any other two.
Do not write on the question paper.

1. (a) Suppose a consumer demand for a good is given as

$$x = 10 + \frac{M}{10P_1}$$

Given that the consumer income is KSh.120 per day and that the price of good X is KSh.3 per unit.

(i) Find the consumer's demand for milk. [1 mark]

(ii) Assume that the price of good X now falls to KSh.2 per unit. Find the new demand for good X. [1 mark]

(iii) Determine the substitution and income effects under constant real income hypothesis of Slutsky. [13 marks]

(b) Suppose that a monopolist faces two markets with demand curves given as

$D_1(P)_1 = 100 - P_1$

$D_2(P_2) = 100 - ZP_1$

Assume that the monopolist's marginal cost is constant at KSh.20 per unit.

(a) If the monopolist can price discriminate, what price should the firm charge in each market in order to maximize profits? [6 marks]

(b) Suppose that the firm cannot price discriminate, what price should it charge? [5 marks]

(c) Describe the alternative ways which a monopolist can price discriminate. [9 marks]

2. (a) Given the following utility function

$$U(X_1X_2) = l_n X_1 + X_2$$

(i) State the consumer problem. [1 mark]
(ii) Form a Langrangian function for the problem. [1 mark]
(iii) Find the consumer's demand function for X_1 and X_2. [8 marks]

(b) Given the following Cobb Douglas production function

$$f(x_1x_2) = x_1^a x_2^b$$

(i) Find the factor demand function. [7 marks]

(ii) Derive the supply function for this firm. [3 marks]

3. (a) Assume that an industry has two firms A and B. The market demand is P = 200 – 0.8Q while the colluding firms have costs given as

$$Ca = 10_a^2 \text{and} C_b = 80Q_b$$

(i) Determine the equilibrium price and quantity that each firm should produce. [10 marks]

(b) Given the production function below

$$Q = AK^{\alpha}L^{\beta}$$

(i) Determine the marginal products of the factors [2 marks]
(ii) Find the marginal rate of technical substitution. [2 marks]
(iii) Determine the elasticity of substitution. [4 marks]
(iv) Determine the nature of returns to scale.

4. (a) The market demand function of a competitive industry is represented by

$$Q = 10.5 - P$$

Where Q is aggregate quantity supplied by all firms at price P. All the firms in the industry have identical cost function

$$C = q - q^2 + 0.5q^3$$

Where C is the cost of a firm and q is the quantity produced by each

Calculate

(i) The output produced by each firm in the long run. [5 marks]

(ii) The long run equilibrium price. [1 mark]

(iii) The equilibrium number of firms. [4 marks]

(b) Given the production and cost functions as

$$Q = 500\ L^{1/4}\ K^{3/4}$$

$$C = \omega.L + r.K$$

(i) Derive the demand curves for labour and capital with a view to maximizing the output when the cost is limited to Ksh.10,000. [2 marks]

(ii) Determine the equilibrium level of employment of the factors given

ω = 100 and r = 75. [6 marks]

(iii) Draw a sketch to explain the equilibrium of this producer. [2 marks]
