KENYATTA UNIVERSITY

UNIVERSITY EXAMINATIONS 2011/2012

INSTITUTE OF OPEN, DISTANCE AND E-LEARNING

FIRST SEMESTER EXAMINATION FOR THE DEGREE OF BACHELOR OF ARTS, BACHELOR OF EDUCATION AND BACHELOR OF COMMERCE

EET 300: ADVANCED MICROECONOMIC THEORY

DATE: Saturday 17th December, 2011 **TIME:** 11.00 a.m. – 1.00 p.m.

INSTRUCTIONS

Answer Question One and any other Two questions.

Question one

a) List the properties of a profit function. [5 marks]

b) A firm production function is $Y = x^a$ where $0 < a < 1$ where Y is output and X is labour inputs.

Let P be the output price and ω be the price of labour.

i) Derive the profit function for the firm. [10 marks]

ii) A legitimate profit function is said to be positively linearly homogeneous; and convex in both output and input prices. Is the above function in (i) above legitimate? Show your working. [10 marks]

iii) Suppose the output price and the price of labour are Kshs.1000 and Kshs.100 respectively, compute the profit maximizing levels of output and input. [5 marks]

Question two

Clearly but briefly distinguish between the following pairs of concepts. Make use of illustrations and diagrams as much as you can.

a) Production possibilities set; Net-put vector [5 marks]

b) Input requirement set; Isoquant [5 marks]

c) The Marginal Rate of Technical Substitution (MRTS) and the elasticity of substitution. [5 marks]

d) Roy's identity; Shepherds lemma [5 marks]

e) Compensated demand functions; Uncompensated demand functions. [5 marks]

f) Cournot's equilibrium; Stackelberg's equilibrium [5 marks]

Question three

a) A C.E.S production function is given by: Q = $A\left(\alpha L^{-\ell} + (1 - \alpha) K^{-\ell}\right)^{-\frac{1}{\ell}}$
Where L is labour and K is capital

(i) Interpret the parameters. [4 marks]

(ii) If = 0, show that he two inputs Labour and Capital are imperfect substitutes in production. [6 marks]

b) "The cost function is a sufficient statistic for the technology since all the economically relevant information about the technology can be obtained from the cost function." Given the following cost function, verify this statement as thoroughly as you can.

$C(w_1, w_2, y) = 10 w_1^{\frac{1}{3}} w_2^{\frac{2}{3}} y$,

Where both w_s are the unit prices of two inputs respectively, and Y is output. [10 marks]

Question four

a) A firm faces the following cost function.

C(W1, W2, y) = 20W1¼ W2¾ y

Where y is the output and W1 and W2 are the prices of the two inputs X1 and X2 respectively. Determine:

i) The input demands X1 and X2. [8 marks]

ii) The underlying production function. [8 marks]

b) A firm's production function is given as: $y = AL^{\alpha}$. Where Y is output and L is labour input. One property of a production function is strict concavity. Does the above production function meet the property? Show your workings. [4 marks]

Question five

A consumer's indirect utility function is given as: $V(p_i, m) = \frac{m^2}{16 p_1 p_2}$

Where the Ps are the prices of two goods respectively, and M is income.

a) Derive the following:

i) The corresponding expenditure function. [4 marks]

ii) The compensated demand function for good. [3 marks]

iii) The uncompensated demand function for good. [3 marks]

b) Consider an industry with two firms each having marginal cost equal to zero. The inverse demand curve facing this industry is p(y) = 100 – y. Where $y = y_1 + y_2$. Determine the Stackelburg equilibrium. [10 marks]

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