MACHAKOS UNIVERSITY

University Examinations for 2016/2017 Academic Year

SCHOOL OF BUSINESS AND ECONOMICS

DEPARMENT OF ECONOMICS

THIRD YEAR FIRST SEMESTER EXAMINATION FOR

BACHELOR OF ECONOMICS AND STATISTICS

BACHELOR OF ECONOMICS & FINANCE

BACHELOR OF ECONOMICS

EET 300: MICROECONOMICS THEORY III

DATE: 28/7/2017 **TIME: 2:00 – 4:00 PM**

INSTRUCTIONS:

Answer Question ONE and any other TWO questions

QUESTION ONE(COMPULSORY) (30 MARKS)

a) Using the information given below answer the succeeding questions;

Demand function $\boldsymbol{Q = 10 - 2P}$

Cost function **MC=10**

i) Find the price, quantity and profit under competitive and monopoly market

ii) Suppose there were two identical firms producing $Q=Q_1+Q_2$ output simultaneously. Find price, quantity and profit of the firms.

iii) Suppose the two firms in (ii) above were producing output and firm 1 produces Q_2, find the price, quantity and profit of the two firms. (12 marks)

b) Given the following production function below

$$Q = A\left(\alpha L^{-\ell} + \beta K^{-\ell}\right)^{-\frac{1}{\ell}}$$

i. Derive the elasticity of substitution δ for the CES

ii. If $\ell = 0$, then δ =1,Derive the underlying production function and state the type of factor inputs used for production (10 marks)

c) The cost function is expressed as a function of input prices and output, with use of illustrations describe its properties (8 marks)

QUESTION TWO (20 MARKS)

a) Describe various types of production function (10 marks)

b) The consumer with the utility function below seeks to maximize utility subject to the budget constraint.

$$\max \; u = x_1 x_2$$
$$st$$
$$p_1 x_1 + p_2 x_2 = M$$

i) Derive the Marshallian demand functions and state their properties

ii) Derive maximum utility (10 marks)

QUESTION THREE (20 MARKS)

a) Discus some of the properties of the production function (10 marks)

b) Given the following production cobb Douglas function $y = X^{\beta}$

Derive the output supply function and maximum profit. (10 marks)

QUESTION FOUR (20 MARKS)

a) Consider an indirect utility function $V(p_i, m)$.Describe some of its properties and Derive the **Roy's Identity** out of it. (8 marks)

b) The firm seeks the minimize cost of producing the level of output Y. Derive the cost function and from it, briefly explain the concept of **Duality**

$$\min C = wL + rK$$
$$s.t$$
$$y = AL^{\alpha} K^{1-\alpha}$$

(12 marks)

QUESTION FIVE (20 MARKS)

a) With use of illustrations of examples, discuss the properties of the profit function (10 marks)

b) Given the following function

$$\min p_1 x_1 + p_2 x_2$$
$$st$$
$$U = x_1 x_2$$

Derive the compensated/Hickisian demand functions (10 marks)