

JARAMOGI ODINGA ODINGA UNIVERSITY OF SCIENCE AND
TECHNOLOGY (JOOUST)

UNIVERSITY EXAMINATIONS 2013/14

**SECOND YEAR FIRST SEMESTER EXAMINATIONS FOR THE
DEGREE OF BACHELOR OF BUSINESS ADMINISTRATION
BUSIA STUDY CENTRE**

AEC 201: INTERMEDIATE MICROECONOMICS TIME: 2 HOURS

INSTRUCTIONS TO CANDIDATES

- Answer question ONE and any other TWO questions
- Question one carries 30 marks
- The rest of the questions carry 20 marks

1. (a) i. A consumer has goods X and Y with the following unit prices: $P_X = sh\ 3, P_Y = sh\ 6$. If the consumer has fixed income sh 300, construct the consumer's budget constraint. (5marks)
- ii. Determine the opportunity cost of Y in terms of X. (5marks)
- (b) Given the utility function $U = 3X_1^{1/3} X_2^{2/3}$, calculate the particular value of Marginal Rate of Commodity Substitution (MRCS) for the indifference curve that passes through (30,240). (10marks)
- (c) Given the Cobb-Douglas production function $Q = 40K^{2/5} L^{3/5}$, determine marginal physical product of capital (MPK) and marginal physical product of labour (MPL). (10marks)

2. (a) Discuss circumstances under which Perfect Competitive market structure may not exist in real life. (10marks)

- (b) The AR and TC for a firm are given by:

$$AR = \frac{7}{2} - \frac{1}{2}Q$$

$$TC = \frac{1}{20}Q^3 - \frac{3}{10}Q^2 + 2Q + 1$$

Find:

- i. The output and price levels that maximize profits (6marks)
- ii. The output level that will maximize total revenue (4marks)

3. (a) Prove that the following demand function has unitary elasticity:

$$Q = \frac{1}{P} \quad (10marks)$$

(b) You are given the following supply and demand functions for a market:

Demand function

$$0.04P^2 + 0.4P + 0.2Q = 20$$

Supply function

$$0.15P^2 + 2P - 0.5Q = -50$$

- i. Determine the price elasticity of demand at $P = 10$ and comment on your results. (5marks)
 - ii. Determine the price elasticity of supply at $P = 20$ and comment on your results. (5marks)
4. (a) Explain the relationship between the following:
- (i) Engel curves and income consumption curves. (5marks)
 - (ii) Offer curves and demand curves. (5marks)
- (b) Write short notes on:
- (i) Law of equi-marginal utility (5marks)
 - (ii) Consumer's equilibrium (5marks)
5. A firm under perfectly competitive market is faced with a price of kshs 200 and the following schedule of total costs at various output levels;

Output levels	Total costs(TC)	Average total costs(ATC)	Marginal costs (MC)
0	4000		
10	5700		
20	6700		
30	7600		
40	8200		
50	8500		
60	9400		
70	10800		
80	12800		
90	13300		
100	19000		

- (i) State the total fixed cost. (2marks)
- (ii) Complete the table. (8marks)
- (iii) At what level of output would the firm maximize its profit? Give a reason for your answer. (6marks)
- (iv) Calculate the maximum profits (4marks)