



KIBABII UNIVERSITY COLLEGE

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UNIVERSITY REGULAR EXAMINATIONS

2012/ 2013 ACADEMIC YEAR

1st YEAR SEMESTER TWO

**FOR THE DEGREE OF BACHELOR OF
EDUCATION (ARTS) (GUIDANCE & COUNSELING)**

**SCHOOL BASED PROGRAMME
(MAIN EXAM)**

COURSE CODE: ECO 103

COURSE TITLE: MATHEMATICS FOR ECONOMISTS

DATE: .31st August, 2013

TIME: 8.00am – 11 a.m.

INSTRUCTIONS TO CANDIDATES

- Question ONE and TWO are Compulsory
- Answer any OTHER question

1. Consider a market described by the following equations.

$$Q_d = 100 - 2p$$

$$Q_s = 4 + 4p$$

Q_d = Quantity demanded

Q_s = Quantity supplied.

Determine :-

(i) Equilibrium price. (5mks)

(ii) Equilibrium quantity. (5mks)

2. Plot the graphs of the following functions:-

(a) $Y = 7^x$ (5mks)

(b) $Y = \frac{36}{X}$ (5mks)

SECTION B.

Answer any 3 questions.

3. (a) Discuss the importance of using mathematics models in Economics. (10mks)

(b) Explain features of a good mathematical model. (10mks)

4. Expand the following terms:-

(a) $(x + y)^5$ (10mks)

(b) $(x + y)^7$ (10mks)

5. (a) A researcher in Nairobi randomly interviewed individuals in the city centre. The following are the data he collected: 40 of those interviewed were Kenyan Christians ; 25 were Kenyans; 10 were Kenyan Christians; 35 were neither Kenyan nor Christians. Using a venn diagram, find the following:-

- (i) The number of Christians non-Kenyan.
- (ii) The number of Kenyan non-Christians.
- (iii) The total number of individuals interviewed.

(5mks)

(b) Give the demand function:-

$$Q_d = 12 - P$$

- (i) Find the demand and revenue schedule.
- (ii) Plot these schedules.
- (iii) Find marginal revenue when $P = 10, 6$ and z .
- (iv) Estimate the elasticity coefficient of the demand curve, when the total revenue is maximum. (15mks)

6. Using the quadratic formula solve

(i) $5x^2 + 2x - 3 = 0$

(10mks)

(ii) $4x^2 - 2x - 8 = 0$

(10mks)