(*Knowledge for Development*)

KIBABII UNIVERSITY

UNIVERSITY EXAMINATIONS 2020/2021 ACADEMIC YEAR

FIRST YEAR 1ST SEMESTER MAIN EXAMINATIONS

FOR THE DEGREE OF BACHELOR OF SCIENCE IN AGRICULTURAL ECONOMICS & RESOURCE MANAGEMENT

COURSE CODE: AEC 111
COURSE TITLE: MATHEMATICS FOR ECONOMIST

DATE: 20TH MAY 2021 **TIME: 9 – 11 AM**

INSTRUCTIONS TO CANDIDATES

Answer Question One and any other two (2) Questions.

TIME: 2 Hours

This paper consists of 2 printed pages. Please Turn Over

Q1.

Write short notes on the following

a) Mathematical and non-mathematical economics **(4 Marks)**

b) Mathematical model **(4 Marks)**

c) Endogeneous and exogeneous variables **(4 Marks)**

d) Types of mathematical equations **(6 Marks)**

e) Domain and range **(4 Marks)**

f) Transpose of a matrix and determinant of a matrix **(4 Marks)**

g) Maxima and minima **(4 Marks)**

Q2.

a) Solve the following by factorization $15x^2 + 16x = 15$ **(5 marks)**

b) Using specific examples, Clearly explain the methods of solving quadratic equations **(15 marks)**

Q3.

Explain the real number system **(20 marks)**

Q4.

a) Explain the rules of solving linear inequations **(10 marks)**

b) The following represent the demand and supply functions for DVD's by John.

Demand: $QD = 3000 - 200P$
Supply: $Qs = 1400 + 260P$

Required

i) Solve for equilibrium price **(5 marks)**

ii) Solve for equilibrium quantities **(5 marks)**

Q5.

Given the following function

$$Y = 4x^2 + 3x + 8$$

Required

i. Find the derivative, dy/dx **(3 marks)**

ii. Determine whether the function has a maximum **(5 marks)**

iii. Using a graph, illustrate your answer **(2 marks)**

iv. Give reasons for your answer in Q5(ii) above **(5 marks)**

v. Find the derivative of the inverse **(5 marks)**