



(Knowledge for Development)

KIBABII UNIVERSITY

**UNIVERSITY EXAMINATIONS
2020/2021 ACADEMIC YEAR
THIRD YEAR SEMESTER ONE
MAIN EXAMINATION**

**FOR THE DEGREE BACHELOR OF EDUCATION (ARTS)
PART-TIME STUDENTS**

COURSE CODE: ESM 311

COURSE TITLE: MATHEMATICS EDUCATION

DATE: 21/07/2021AD

TIME: 2:00PM-5:00PM

INSTRUCTIONS TO CANDIDATES

Answer Question One and any other TWO Questions

TIME: 2 Hours

This Paper Consists of 3 Printed Pages. Please Turn Over.

QUESTION ONE (30 MARKS)

- a) Define the following terminologies as used in mathematics education. (5 Marks)
- (i) Mathematics education
 - (ii) Formative Assessment.
 - (iii) Lesson Plan
 - (iv) Test blue print
 - (v) Syllabus
- b) Why is it important for a mathematics teacher to have good communication skills? (4 Marks)
- c) State any **three** vital leaning styles in mathematics. (3 Marks)
- d) Highlight **four** roles of ICT in teaching mathematics. (4 Marks)
- e) State **five** planning steps involved in mathematics project. (5 Marks)
- f) Give **four** contributions of Mathematics Education to the achievement of national goals of education. (4 Marks)
- g) Apply the first principle to evaluate the function $y = x^2 + 1$ (5 Marks)

QUESTION TWO (20 MARKS)

- a) Explain any **five** roles of curriculum in mathematics teacher development. (10 Marks)
- b) Describe any **five** deductive steps involved in teaching mathematics. (10 marks)

QUESTION THREE (20 MARKS)

- a) Having noticed that your mathematics students have not grasped the concepts of both surface area and volume, as their teacher design classroom hands on activities that can enable them grasp the concepts. (10 Marks)
- b) Describe any **five** importance of mathematics laboratory. (10 Marks)

QUESTION FOUR (20 MARKS)

- a) Describe six ways to use authentic assessment math in the classroom. (12 Marks)
- b) Given that Topic Algebraic Expressions has the following sub topics: Letters for numbers, Algebraic expressions including algebraic fractions, Simplification of algebraic expressions, Factorization by grouping, Removal of brackets, Substitution and evaluation, Problem solving in real life situations. Construct a one week schemes of work. (8 Marks)

QUESTION FIVE (20 MARKS)

- a) Describe any **five** features of a lesson plan. (10 Marks)
- b) Beneath any issues which might arise in knowledge of content, many students with good KCPE grades in mathematics seem to find it difficult to apply the mathematical knowledge that they might have. Explain any **five** reasons. (10 Marks)