



MERU UNIVERSITY OF SCIENCE AND TECHNOLOGY

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University Examinations 2022/2023

THIRD YEAR SECOND SEMESTER EXAMINATION FOR THE DEGREE OF BACHELOR OF EDUCATION SCIENCE, BACHELOR OF EDUCATION ARTS, BACHELOR OF EDUCATION TECHNOLOGY IN CIVIL ENGINEERING, BACHELOR OF EDUCATION TECHNOLOGY IN ELECTRICAL ENGINEERING AND BACHELOR OF EDUCATION TECHNOLOGY IN MECHANICAL ENGINEERING

ECT 3350: MATHEMATICS SUBJECT METHODS

DATE: APRIL 2023

TIME: 2 HOURS

INSTRUCTIONS: Answer question *one* and any other *two* questions

QUESTION ONE (30 MARKS)

- a) Discuss the meaning of lesson plan (2 marks)
- b) Suppose you have been assigned a form two class and you intend to teach expansion of algebraic expressions which is a subtopic of quadratic expression
 - i. Develop two lesson objectives for teaching the concept (4 marks)
 - ii. Demonstrate how you would introduce the lesson so as to stimulate the interest of the learners (3 marks)
- c) Explain any five factors that a teacher has to consider while preparing mathematics schemes of work (5 marks)
- d) Examine any two emerging issues in secondary school mathematics education (5 marks)
- e) Discuss the purpose of assessment in mathematics (4 marks)

- f) The competency based curriculum (CBC) has emphasized the need of integrating values during teaching and learning process. Explain any two values and explain how you can help the students to acquire them during a mathematics lesson (4 marks)
- g) Textbooks are used as one of the main resource of teaching. Explain four qualities of a good mathematics textbook (4 marks)

QUESTION TWO (20 MARKS)

- a) Discuss five ways of eliminating gender bias in mathematics (10 marks)
- b) Discuss the implications of Jean Piaget theory to the teaching of mathematics (10 marks)

QUESTION THREE (20 MARKS)

- a) Explain three reasons why it is important for a teacher to have a syllabus when planning to teach mathematics (3 marks)
- b) Demonstrate how you can use models to demonstrate to the learners that the circumference of a circle is given by πD (5 marks)
- c) Explain using a diagram how blooms cognitive levels can be used in the preparation of a standard mathematics test (12 marks)

QUESTION FOUR (20 MARKS)

- a) Explain three reasons why microteaching is important to a mathematics teacher trainee (6 marks)
- b) Explain any three advantages of using question-answer method during a mathematics lesson (6 marks)
- c) Discuss any four roles of the teacher in ensuring effective students engagement during a mathematics lesson (8 marks)

QUESTION FIVE (20 MARKS)

- a) Explain two roles of KNEC in the secondary school education (4 marks)
- b) Explain any three techniques of teaching mathematics using problem solving approach (6 marks)
- c) One of the objectives of teaching secondary school mathematics as enlisted by the KICD is to develop a positive attitude towards mathematics. Discuss any five strategies a teacher should apply in order to help the students to realize this objective (10 marks)