



MACHAKOS UNIVERSITY

University Examinations 2022/2023

SCHOOL OF EDUCATION

DEPARTMENT OF EARLY CHILDHOOD EDUCATION COMMUNICATION AND
TECHNOLOGY

THIRD YEAR FIRST SEMESTER EXAMINATION FOR
BACHELOR OF EDUCATION (EARLY CHILDHOOD EDUCATION)

ECT302: TEACHING METHODS IN MATHEMATICS

DATE:

TIME:

INSTRUCTIONS: Attempt question one which is a compulsory question and any other
two questions.

1.
 - (a) Outline four objectives of teaching mathematics. (4 marks)
 - (b) Highlight the essential elements in a well stated Mathematics Instructional objective (6 marks)
 - (c) Describe **five** ways in which the KCSE mathematics syllabus does not fully guide the teacher. (10 marks)
 - (d) Discuss the circumstances under which a mathematics teacher may use the following approaches.
 - (i) Inductive Approach
 - (ii) Expository Approach in teaching Pythagoras theorem. (10 marks)
2.
 - (a) Describe the interrelationship between a Mathematics lesson plan, a scheme of work and a syllabus. (6 marks)
 - (b) Contrast between behaviorist and constructivist theories. (6 marks)
 - (c) Assessment should not merely be done **TO** students rather it should be done **FOR** students. Discuss. (4 marks)

- (d) Students' attitude towards mathematics contribute to student task engagement and hence performance outcomes. Discuss. (4 marks)
3. (a) One of the aims of teaching mathematics is "To develop the ability to communicate precisely in symbolic form. Discuss. (10 marks)
- (b) Explain the importance of instructional materials in the teaching of mathematics. (4 marks)
- (c) Outline **four** important elements of a lesson plan apart from the administrative details. (4 marks)
4. (a) **Discuss five** ways in which a textbook can be used to support learning. (10 marks)
- (b) Assume you are teaching the topic simultaneous equations and the subtopic is: Using graphical method to solve simultaneous equations, write:
- (i) An objective in cognitive domain. (1 mark)
- (ii) An objective in psychomotor domain. (1 mark)
- (iii) List **five learning activities** that may aid the learner to interact with the content. (5 marks)
- (iv) Write **three resources** that may be used in teaching the concept. (3 marks)
5. (a) The chalk board is the most popular and readily available teaching aid in most schools. It is the kind of mirror which reflects what kind of teachers we are. It is an extremely powerful aid in communication. Discuss **three factors** that the teacher should take into consideration when using the chalk board in a mathematics lesson. (6 marks)
- (b) One of the reasons for making teaching aids is to bridge the gap between what is abstract and concrete situation. The topic "Three dimensional geometry" is a typical kind of topic which usually gives learners challenges unless appropriate aids are used. **Discuss citing relevant examples how** a teacher can enhance students' learning in this topic. (8 marks)

(c) Define the following terms: -

(i) Evaluation (6 marks)

(ii) Formative evaluation (6 marks)

(iii) Summative evaluation (6 marks)