

MACHAKOS UNIVERSITY COLLEGE

SCHOOL OF EDUCATION

DEPARTMENT OF COM. TECH.

B.ED EXAMINATION (School based)

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 aims 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 (10 marks)
2. (a) Describe the interrelationship between a Mathematics lesson plan, a scheme of work and a syllabus. (6marks)
- b) Explain why it is important for a mathematics teacher to plan for teaching. (7 marks)
- c) Students' attitude towards mathematics contribute to student task engagement and hence performance outcomes. Discuss. (7 marks)

3. The following question was set by a form four mathematics teacher at Makutano secondary school, "A father is 42 years old while his son is 12 years old. In how many years' time will the father be three times as old as the son?" (5 marks)

- a) Solve the problem. (5 marks)
 - b) Prepare a marking scheme for the question. (5 marks)
 - c) Highlight some of the errors candidates are likely to make in solving the question. (5 marks)
 - d) Explain how the teacher would address these errors. (5 marks)
4. (a) Explain the importance of instructional materials in the teaching of mathematics. (4 marks)

b) Explain three roles of mathematics textbook in the classroom. (6 marks)

(c) 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

ii) An objective in psychomotor domain

iii) List five learning activities that may aid the learner to interact with the content.

iv) Write three resources that may be used in teaching the concept. (10 marks)

5 a) A learner who constantly states $(a+b)^2$ as being equal to a^2+b^2 as correct can be assisted by using geometry. Explain how this can be done. (8 marks)

b) Prepare a lesson plan that you would use to practically demonstrate to learners the correct identity. (12 marks)