MACHAKOS UNIVERSITY
University Examinations 2018/2019

SCHOOL OF EDUCATION

DEPARTMENT OF EDUCATIONAL COMMUNICATION TECHNOLOGY

DECEMBER SESSION EXAMINATION FOR

BACHELOR OF EDUCATION

ECT 302: ………………….

<u>**DATE: SCHOOL BASED**</u>   **TIME**

INSTRUCTIONS: Answer Question One (compulsory) and any other Two Questions

QUESTION ONE (COMPULSORY) (30 MARKS)

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)

QUESTION TWO (20 MARKS)

a)   Describe the interrelationship between a Mathematics lesson plan, a scheme of work and
       a syllabus.   (6 marks)

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)

QUESTION THREE (20 MARKS)

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)

    i)   Solve the problem.   (5 marks)
    ii) Prepare a making scheme for the question.   (5 marks)
    iii) Highlight some of the errors candidates are likely to make in solving the question.
                                                                                                                       (5 marks)
    iv) Explain how the teacher would address these errors.   (5 marks)

QUESTION FOUR (20 MARKS)

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)

QUESTION FIVE (20 MARKS)

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 leaners the correct identity.   (12 marks)