MACHAKOS UNIVERSITY

University Examinations 2016/2017

SCHOOL OF EDUCATION

DEPARTMENT OF COMMUNICATION TECHNOLOGY

THIRD YEAR APRIL SESSION EXAMINATION FOR BACHELOR OF EDUCATION

ECT 302: TEACHING METHODS IN MATHEMATICS

DATE: SCHOOL BASED **TIME:**

INSTRUCTIONS

Answer Question One and Any Other Two Questions

1. a) State **four** objectives from the secondary school mathematics curriculum. (4 marks)

   b) Highlight the essential elements in a well stated mathematics instructional objective. (6 marks)

   c) Using relevant illustration, define the following terms as used teaching mathematics instruction. (6 marks)

      i Inductive approach

      ii Deductive approach

   d) Discuss **three** guidelines to follow when using mathematical textbook. (6 marks)

   e) Differentiate between behaviorist and constructivist approaches to mathematics instruction. (6 marks)

2. 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 making 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)

3. a) Explain the importance of instructional materials in the teaching of mathematics. (4 marks)

b) "Assessment should be done for students and not merely to students". Discuss. (6 marks)

c) Explain five primary purpose of arrangement in a mathematics class. (10 marks)

4. a) Describe the George polya heuristics in problem solving. (8 marks)

b) One of the course objectives of learning mathematics at secondary school in Kenya is to enable the learner to "Perform mathematical operations and manipulations with confidence, speed and accuracy". Explain how you would accomplish the above targets in teaching mathematics in Kenya. (12 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 leaners the correct identity. (12 marks)