MACHAKOS UNIVERSITY

University Examinations for 2018/2019 Academic Year

SCHOOL OF EDUCATION

DEPARTMENT OF COMMUNICATION TECHNOLOGY

THIRD YEAR SECOND SEMESTER EXAMINATION FOR

BACHELOR OF EDUCATION

ECT 302: MATHEMATICS METHODS

DATE: 15/4/2019 **TIME: 8:30 – 10:30 AM**

INSTRUCTIONS

Answer question ONE and any other TWO questions

1. a) Explain five reasons why a mathematics teacher should plan for teaching. (10 marks)

   b) Discuss the importance of a Mathematics text book during the teaching of Mathematics. (10 marks)

   c) Outline five aims of teaching Mathematics. (5 marks)

   d) Explain the importance of teaching resources in Mathematics. (5 marks)

2. a) Assume you are teaching the topic simultaneous equations and the subtopic is: Using graphical method to solve simultaneous equations, write: (10 marks)

      i) An objective in cognitive domain

      ii) An objective in psychomotor domain

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

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

   b) Explain the rationale for problem solving in Mathematics teaching. (10 marks)

3. a) Citing examples, explain each of the five types of mathematical knowledge that secondary school mathematics curriculum exposes to students. (10 marks)

b) Discuss the circumstances under which a Mathematics teacher may use the following approaches. (10 marks)

i) Expository approach

ii) Inductive approach

4. a) Pythagorean Theorem states that $c^2 = a^2 + b^2$, discuss an activity that you would use in class to lead learners to prove this. (10 marks)

b) Explain the importance of the remarks column in a mathematics scheme of work. (4 marks)

c) Distinguish between learning and instructional theories in relation to teaching and learning of mathematics. (6 marks)

5. a) "When marking a mathematics test, teachers should not only look at answers". Discuss. (6 marks)

b) Explain the importance of testing in mathematics. (6 marks)

c) Explain the importance of each stage of Piaget's theory of intellectual development in the learning of mathematics. (8 marks)