



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)