



MACHAKOS UNIVERSITY

University Examinations 2017/2018

SCHOOL OF EDUCATION

DEPARTMENT OF COMMUNICATION TECHNOLOGY

THIRD YEAR SECOND SEMESTER EXAMINATION FOR BACHELOR OF EDUCATION

ECT 302: TEACHING METHODS IN MATHEMATICS

DATE: 18/12/2017

TIME: 8.30-10.30 AM

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 in teaching mathematics. (6 marks)
 - i. Inductive approach
 - ii. Deductive approach
 - d) Discuss three guidelines to follow when using mathematical textbook. (6 marks)
 - e) Contrast between behaviorist and constructivist theories. (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) Discuss five primary purpose of assessment in a mathematics class. (10 marks)
- 4.
 - a) One of the aims of teaching mathematics is ‘ ‘ Develop ability to communicate preciseiy in symbolic form’’ Discuss. (8 marks)
 - b) Explain the George Polya heuristics in problem solving using a mathematics sub-topic. (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)