MACHAKOS UNIVERSITY

University Examinations 2020/2021 Academic Year

SCHOOL OF EDUCATION

DEPARTMENT OF EDUCATIONAL COMMUNICATION ANDTECHNOLOGY

THIRD YEAR SPECIAL/ SUPPLIMENTARY EXAMINATION FOR

BACHELOR OF EDUCATION

ECT 302: MATHEMATICS TEACHING METHODS

DATE: 26/3/2021 **TIME: 2.00-4.00 PM**

INSTRUCTIONS

ANSWER QUESTION ONE AND ANY OTHER TWO QUESTIONS

QUESTION ONE (30 MARKS)

a) Discuss **five** aims of teaching mathematics (10 marks)

b) Explain George Polya`s heuristics to problem solving (10 marks)

c) Explain **five** reasons of testing in mathematics (10 marks)

QUESTION TWO (20 MARKS)

a) Outline Piaget`s stages of intellectual development, stating the importance of each stage to learning of mathematics (10 marks)

b) Explain **five** reasons of using teaching resources when teaching mathematics (10 marks)

QUESTION THREE (20 MARKS)

a) Discuss five functions of models in the teaching of mathematics (10 marks)

b) Explain four ways in which the secondary school mathematics syllabus does not guide the teacher (4 marks)

c) Explain **three** reasons why it is important for a Mathematics teacher to plan for teaching (6 marks)

QUESTION FOUR (20 MARKS)

a) Describe the series of stages you would follow to lead learners to discover that, for any two perpendicular lines l1 and l2 whose gradients are M1 and M2 respectively, M1M2 =-1 (10 marks)

b) i Explain the meaning of the following terms as used in teaching and learning of mathematics

- Expository approach
- Discovery approach (4 marks)

ii Explain the circumstances under which a mathematics teacher would result to using the following approaches

- Expository approach
- Discovery approach (6 marks)

QUESTION FIVE (20 MARKS)

a) Illustrate **five** ways in which problem solving is important in teaching and learning of mathematics . (10 marks)

b) Explain each of the five types of mathematical knowledge that the secondary school mathematics curriculum exposes to students (10 marks)