



MACHAKOS UNIVERSITY

University Examinations for 2024/2025 Academic Year

SCHOOL OF EDUCATION
DEPARTMENT OF EDUCATIONAL COMMUNICATION TECHNOLOGY & ECE

THIRD YEAR FIRST SEMESTER EXAMINATION FOR DEGREE IN
BACHELOR OF EDUCATION (ECE)

ECE 213: SCIENCE AND MATHEMATICS FOR ECE

DATE: 22ND JANUARY, 2025

TIME: 8.30 AM – 10.30 AM

INSTRUCTIONS:

*Answer question **ONE (Compulsory)** and any other **TWO** questions*

QUESTION ONE (COMPULSORY) (30 MARKS)

- a) Define the following terms as they are used in the unit. (10 marks)
- i) Mathematics
 - ii) Concept
 - iii) Science
 - iv) Numbers
 - v) Skills
- b) Using five points, justify the fact that children in the Early Childhood Education can learn every concept in mathematics and science. (10 marks)
- c) Explain importance of teaching mathematics concepts to Early Childhood Education teacher trainee. (10 marks)

QUESTION TWO (20 MARKS)

- a) Describe the nature of mathematics for preschool in five points. (10 marks)

- b) Time is one of the most difficult concepts for children to understand. This is because children cannot see, touch or smell it. Discuss FIVE teaching and learning activities that can be used to help children to acquire time concepts. (10 marks)

QUESTION THREE (20 MARKS)

- a) Identify and discuss fourteen locally available teaching and learning materials that can be used in teaching science/mathematics concepts in pre-school. (14 marks)
- b) Discuss three counting errors commonly done by pre-scholars. (6 marks)

QUESTION FOUR (20 MARKS)

- a) Discuss two (2) activities for each mathematical concept below that you would use teach 4-year-old the concept of:
- i) Number value
 - ii) Number recognition
 - iii) Rote counting. (12 marks)
- b) What is mathematics in context of preschool learning? (8 marks)

QUESTION FIVE (20 MARKS)

- a) Give six reasons as to why geometry should be included in pre-school mathematics activities. (12 marks)
- b) Discuss the four important principles on which the counting process rests on. (8 marks)