



MACHAKOS UNIVERSITY

University Examinations 2020/2021 Academic Year

SCHOOL OF EDUCATION

DEPARTMENT OF EARLY CHILDHOOD EDUCATION

THIRD YEAR FIRST SEMESTER EXAMINATION FOR

BACHELOR OF EDUCATION (EARLY CHILDHOOD)

ECE 304: METHODS OF TEACHING SCIENCE AND MATHEMATICS IN ECE

DATE: 10/8/2021

TIME: 2.00-4.00 PM

INSTRUCTIONS

Answer Question ONE and any other TWO questions

QUESTION ONE (30 MARKS)

- a) Explain **three ways** in which the current CBC Curriculum has enhanced the teaching of science and mathematics in ECE. (6 marks)
- b) There are four ways teachers can create an interactive learning environment:
- Hands-on demonstrations and activities
 - Student-to-student interactions
 - Student-teacher interactions
 - Use of audiovisuals
- Explain how THE FOUR aspects can be integrated in the teaching of the sub-strand 'caring for our teeth'. (12 marks)
- c) Choose **one** of the following methods of preschool teaching and illustrate you would implement it in ECE: (12 marks)
- Reggio-Emilia.
 - Montessori Method.
 - Waldorf Steiner Method.
 - STEM-based Method.
 - Bank Street Method.

QUESTION TWO (20 MARKS)

- a) Describe how a **Teaching Method that emphasises experiential and relational learning** can be applied to the teaching of **Prenumber Activity in ECE**. (7 marks)
- b) Given the Sub-Strand: **Sorting and Grouping**, prepare a 30-minute lesson plan suitable for a PP1 class.
- Include the following:
- i. Two specific learning outcomes. (2 marks)
 - ii. Two key inquiry questions. (2 marks)
 - iii. Learning resources to be used. (3 marks)
 - iv. Lesson organization: Introduction; development; extended activities; and conclusion. (6 marks)

QUESTION THREE (20 MARKS)

- a) Briefly explain the essence of each of the following **phases of scientific Investigation**:
- i. Defining the problem. (3 marks)
 - ii. Choosing a method. (2 marks)
 - iii. Arriving at solutions. (3 marks)
- b) Outline the steps you would follow in planning for **an outdoor activity** that integrates Maths, Science and Environmental aspects of learning. (12 marks)

QUESTION FOUR (20 MARKS)

- a) Explain how the teaching of Maths and Science may contribute to the development of children. (8 marks)
- b) Choose a Sub-strand from the ECE maths/ Science curriculum and describe how you would teach it using the **Dramatization and Role Play Method**. Include: preparation; resources; organization and implementation; as well as assessment of learning outcomes. (12 marks)

QUESTION FIVE (20 MARKS)

Write a brief essay on **one** of the following topics:

- a) Competencies in the Competence-Based Curriculum.
- b) Assessment of procedures in the CBC.
- c) Values in the Competence-Based Curriculum.