*(University of Choice)*

# MASINDE MULIRO UNIVERSITY OF SCIENCE AND TECHNOLOGY (MMUST)

## UNIVERSITY EXAMINATIONS
## 2023/2024 ACADEMIC YEAR

### THIRD YEAR FIRST SEMESTER EXAMINATIONS

### MAIN EXAM
### FOR
### THE BACHELOR OF EDUCATION DEGREE

### (EARLY CHILDHOOD EDUCATION)

**COURSE CODE:** ECD 303

**COURSE TITLE: METHODS OF TEACHING SCIENCE AND MATHEMATICS IN ECD**

**DATE:** 6TH DEC. 2023          **TIME:** 3:00 – 5:00 PM

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### INSTRUCTIONS TO CANDIDATES

Answer 3 questions
Question ONE (1) is compulsory
Answer two other (2) questions

TIME: 2 Hours

MMUST observes ZERO tolerance to examination cheating

1a. Identify and explain the 3 major counting errors that children experience when learning how to count. (5 marks)

b. Describe 5 major roles of the natural environment in teaching science and mathematics (5 marks)

c. Describe 5 roles of the ECD teacher during a science project on "sinking and floating" (5 marks)

d. Illustrate 5 factors to consider when designing mathematics experiences for young learners (5 marks).

e. Discuss 5 instructional methods in which an ECD science and mathematics teacher can ensure that the teaching takes incorporated Jerome Bruner's ideology (10 marks)

2 a. Identify and discuss the stages that children undergo in developing number concepts in the early years, giving relevant activities in each stage (10 marks)

b. Identify 5 ways in which an ECDE teacher can assess the acquisition of science and mathematics competences in young children (10 marks)

3 a. Design a one-week scheme of work for teaching mathematics on the theme: 'Measurement ', Subtheme; "Volume & Capacity" (14 marks)

b. Derive a lesson plan for a mathematics lesson from the scheme of work developed (6 marks)

4 a. Identify and explain 5 disadvantages of the question and answer method of teaching science (10 marks)

b. Outline at least 5 activities that a PPI teacher can use to teach the concept of "Space" in a mathematics lesson, including the resources required (10 marks)

5. Identify major signs that children could be experiencing Mathematics difficulties in the following abilities

a. Organizational difficulties (10 marks)

b. Attention difficulties (10 marks)