



**JARAMOGI OGINGA ODINGA UNIVERSITY OF SCIENCE AND TECHNOLOGY**

**SCHOOL OF EDUCATION  
DEPARTMENT OF CURRICULUM STUDIES, EDUCATIONAL ADMINISTRATION,  
PLANNING AND MANAGEMENT  
UNIVERSITY EXAMINATIONS 2021/2022 ACADEMIC YEAR (DECEMBER 2022)**

**3<sup>RD</sup> YEAR 1<sup>ST</sup> SEMESTER EXAMINATION FOR THE DEGREE OF BACHELOR OF  
EDUCATION (ARTS/SCIENCE/SPECIAL NEEDS)**

**MAIN CAMPUS**

---

**COURSE CODE: ECB 2303**

**TITLE: SPECIAL METHODS OF TEACHING MATHEMATICS**

**DATE: 20/12/2022**

**EXAMS SESSION: 9.00-11.00AM**

**DURATION: 2 HOURS**

---

**INSTRUCTIONS**

1. Answer Question **ONE** (COMPULSORY) and **ANY** other **TWO** questions.
2. Candidates are advised not to write on the question paper.
3. Candidates must hand in their answer booklets to the invigilator while in the examination room.

### QUESTION ONE

- (a) Define mathematics and justify how mathematics is a language and how maths fosters discipline? (4 marks)
- (b) Justify using examples why mathematics is said to be everywhere (4 marks)
- c. Explain the importance of instructional resources in teaching and learning of mathematics (5 marks)
- d. Distinguish between Cognitive, Affective and Psychomotor categories of objectives as pointed by Benjamin Blooms et Al. (1956). (5 marks)
- e. List the essential element in a well stated instructional objective. (5 marks)
- f. Enumerate some four techniques appropriate for Exploratory teaching (4 marks)
- g. Identify any three philosophers who contributed to the philosophy of mathematics (3 marks)

### QUESTION TWO

Select a topic from the Secondary School Mathematics syllabus,

- (a) Derive an instructional objective which is achievable in a forty minute lesson (8 marks)
- (b) Prepare a lesson plan for achieving the stated objective (12 marks)

### QUESTION THREE

- a) Identify any five schools of mathematics thought (10 marks)
- b) Explain the contributions of mathematics to the society. (10 marks)

### QUESTION FOUR

- a. Using an illustration, describe the JOOUST format of Schemes of work (8 marks)
- b. Describe how you would teach mathematics lesson using Expository teaching method, illustrating all series of steps to cover with your students. (12 marks)

### QUESTION FIVE

- (a) Describe strategies for teaching slow learners in Mathematics (10 marks)
- (b) Justify how a mathematics teacher can apply Cognitivism theory to teach any mathematics concept as pointed out by Jean Piaget (10 marks)