



# MERU UNIVERSITY OF SCIENCE AND TECHNOLOGY

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## UNIVERSITY EXAMINATIONS 2023/2024

THIRD YEAR SECOND SEMESTER EXAMINATION FOR DEGREE OF BACHELOR OF SCIENCE  
IN EDUCATION SCIENCE

### ECT 3352: CHEMISTRY SUBJECT METHODS

DATE: APRIL 2024

TIME: 2 HOURS

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**INSTRUCTIONS: Answer Question ONE and any other TWO questions.**

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#### QUESTION ONE (30 MARKS)

- a) Discuss two ways in which inquiry-based methods can be used to enhance student engagement and understanding of chemical concepts? (6 marks)
- b) Explain the concept of
- c) i. Flipped classroom in the context of teaching chemistry. (3marks)  
ii. How does this approach alter the oft-used traditional teacher-centered learning model? (3 marks)
- d) Discuss the importance of hands-on laboratory experiences in teaching chemistry. That is, how do laboratory activities contribute to the development of scientific inquiry skills and critical thinking abilities in students? (6 marks)
- e) Ongoing professional development in teacher education is critical for practicing teachers. Discuss any three roles that the practice plays in the life of a teacher. (6 marks)
- f) How can teachers use records of work to assess student progress and inform instructional decisions in chemistry education? Give three ways (6 marks)



### QUESTION TWO 20 MARKS

- Giving pertinent examples from a form II Chemistry syllabus describe the key components included in a scheme of work for teaching (8 marks)
- Based on the scheme of work described in (a) develop an appropriate lesson plan, (8 marks)
- Justify your choice of teaching/learning methods for the lesson. (4 marks)

### QUESTION THREE 20 MARKS

- Discuss three primary learning objectives of Chemistry teaching/subject methods course. (6 marks)
- Describe two ways in which the learning objectives of the chemistry teaching methods course align with broader national educational goals? (6 marks)
- In what ways does the teaching of chemistry in schools support the nation's goal of promoting sustainable development and environmental conservation? Give four specific examples. (8 marks)

### QUESTION FOUR 20 MARKS

- Early alchemists and scholars have contributed to the development of chemistry over time. One such is Antoine Lavoisier. Discuss any three ways in which his work revolutionized the field of chemistry. Give specific examples. (6 marks)
- Chemistry teachers often teach the periodic table to their students. What role did the development of the periodic table play in the advancement of chemistry? Discuss any four reasons why we insist on students learning it? (8 marks)
- Discuss three ways in which Kenya's goals of education align with the teaching and learning of chemistry (6 marks)

### QUESTION FIVE 20 MARKS

- In a classroom situation, the learner is the teacher's audience. Discuss two characteristics of a learner that may pose a challenge to you as chemistry teacher during a practical lesson. (4 marks)



- b) Discuss any two challenges commonly faced by teachers of chemistry in most schools in Kenya. (4 marks)
- c) How does the teaching of chemistry contribute to Kenya's goal of promoting social cohesion, cultural diversity, and national unity? (6 marks)
- d) Explain any three contributions of the Graeco-Arabic Translation Movement towards the development of chemistry as we know it today. (6 marks)

