



# MASENO UNIVERSITY

## UNIVERSITY EXAMINATIONS 2017/2018

THIRD YEAR FIRST SEMESTER EXAMINATION FOR  
THE DEGREE OF BACHELOR OF EDUCATION [SCIENCE]  
WITH INFORMATION TECHNOLOGY

### MAIN CAMPUS

### ECT 333: METHODS OF TEACHING CHEMISTRY

Date: 12<sup>th</sup> March, 2018

Time: 12.00 - 3.00pm

---

#### INSTRUCTIONS:

- Answer Question ONE and any other THREE



### Question One (Compulsory) (25 marks)

- a) i) State any three (3) goals of science education. (3marks)  
ii) Explain why:  
• Science should be regarded as a dynamic process.  
• Chemistry should be regarded as an experimental science. (2marks)
- b) i) Describe the three (3) thought – levels at which chemistry operates as a science. (3marks)  
ii) Explain the implication of these levels for the teaching and learning of chemistry. (2marks)
- c) Briefly outline the factors that should guide you in constructing a chemistry scheme of work. (5marks)
- d) Explain the difference between the following sets of activities in your assessment of chemistry teaching.  
i) Assessment and Evaluation. (3marks)  
ii) Assessment of learning and assessment for learning. (2marks)
- e) i) Distinguish between role simulation and role substitution as techniques of improvisation. (3marks)  
ii) Identify any two (2) educational benefits derived from using the local environment to teach chemistry. (2marks)

### Question Two

- a) Critically examine the use of generic schemes of work and lesson plans in planning to teach chemistry; giving any two (2) merits and two (2) limitations of their use. (5marks)
- b) Prepare a 40 minutes lesson plan to teach any sub topic of your choice, as a class experiment in form I. (10marks)

### Question Three

Practical work in the chemistry laboratory may be of the expository type or exploratory (inquiry) type. Explain the difference between the two types of practical work highlighting for each case the:

- Features,
- Advantages and,
- Challenges in using it. (15marks)

#### Question Four

- a) To maintain an accident-free laboratory, the chemistry teacher should examine the laboratory for all obvious hazards and take steps to reduce them. Identify any five (5) such areas in the lab and explain why the teacher should examine them. (10marks)
- b) Explain how the following factors affect the level of risk in the chemistry laboratory.
- School enrolment or class size.
  - Teaching techniques. (5marks)

#### Question Five

Outline the benefits and challenges of integrating the use of information technology in the teaching of chemistry in Kenyan secondary schools. (15marks)

#### Question Six

Oral questioning and observation are techniques suggested in the syllabus to be used for assessing chemistry teaching. For each technique describe:

- How it is used.
- The skills it is best suited for.
- Strengths and shortcomings of using it. (15marks)