



**JARAMOGI ODINGA OGINGA UNIVERSITY OF SCIENCE AND TECHNOLOGY**  
**SCHOOL OF EDUCATION**  
**UNIVERSITY EXAMINATION FOR THE DEGREE OF BACHELOR OF EDUCATION**  
**ARTS WITH IT**  
**3<sup>RD</sup> YEAR, 1<sup>ST</sup> SEMESTER, 2017/2018 ACADEMIC YEAR**  
**MAIN CAMPUS, REGULAR**

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**COURSE CODE: ECT 333**

**COURSE TITLE: SPECIAL METHODS FOR TEACHING CHEMISTRY**

**DATE .....**

**STREAM: BED (Arts)**

**TIME: 2HOURS**

**EXAM SESSION: December, 2017**

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**Instructions:**

**1 Answer question ONE (COMPULSORY) and ANY other TWO questions.**

**2 Candidates are advised not to write on the question paper.**

**3 Candidate must hand in their answer booklets to the invigilator while in the examination room.**

### **QUESTION ONE**

- a) Justify the learning of chemistry in secondary school curriculum (4mks)
- b) Construct a suitable inquiry based learning lesson plan on salts to be taught in form three in a single lesson(8mks)
- c) Account for the inclusion of “**skills**” and “**process skills**” in the teaching of chemistry in secondary schools. (3mks)
- d) Discuss the negative effects of examinations on attainment of the objectives of chemistry.(3mks)
- e) A label on a bottle containing sulphuric (IV) acid has the following information
  - Density=  $1.836\text{g/cm}^3$
  - Percentage purity=98%
  - Relative formula mass=98

### **Calculate**

- i. Concentration of the acid (3mks)
  - ii. The volume of the concentrated sulphuric (IV) acid that should be diluted to produce 2 litres of 2m sulphuric (IV) acid (3mks)
- f) Discuss why students of chemistry have to be educated on how to explore local materials in the school environment for learning purposes (6mks)

### **QUESTION TWO**

- a) Explain ASEI-PDSI movement of teaching and learning of chemistry (10mks)
- b) Discuss with the use of relevant examples why a teacher of chemistry needs to be literate in information technology (ICT) (5mks)
- c) Discuss laboratory management under:
  - i. Storage of chemicals (5mks)
  - ii. Location
  - iii. Design

### **QUESTION THREE**

- a) Discuss the fear that the introduction of free secondary education in Kenya could have negative effect on the process of teaching and learning of chemistry in schools. (8mks)
- b) Discuss the assertion that the use of oral questioning and observation techniques for formal assessment in chemistry teaching and learning is rare. (3mks)
- c) Discuss three national aims for teaching chemistry content to the youth (3mks)
- d) Design a student’s work sheet to perform an experiment on standardization of wood as solution using 0.1M hydrochloric acid (4mks)

### **QUESTION FOUR**

- a) Discuss the following types of evaluation as used in teaching and learning of chemistry (8mks)
  - i. Formative evaluation

- ii. Diagnostic evaluation
- iii. Summative evaluation

- b) Explain what is entailed in inquiry based learning as a teaching and learning strategy (8mks)
- c) Explain factors a teacher of chemistry has to put in mind during selection of teaching and learning resources (4mks)

#### **QUESTION FIVE**

- a) Explain benefits and challenges of problem based learning in Chemistry (8mks)
- b) Explain the essential components of schemes of work for chemistry (8mks)
- c) Explain situations where a chemistry teacher can resort to demonstrations as a way of enhancing teaching and learning (4mks)