



# TECHNICAL UNIVERSITY OF MOMBASA

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SCHOOL OF APPLIED AND HEALTH SCIENCES

DEPARTMENT OF PURE & APPLIED SCIENCES

UNIVERSITY EXAMINATION FOR

DIPLOMA IN SCIENCE LABORATORY

DIPLOMA IN ANALYTICAL CHEMISTRY

ACH 2103 LABORATORY PRACTICE –I (DSLT/DAC 2024S)

END OF SEMESTER EXAMINATION(Supplementary)

**SERIES: MAR 2025**

**TIME:2 HOURS**

**DATE : MAR 2025**

## Instructions to Candidates

You should have the following for this examination

*Answer Booklet, examination pass and student ID*

This paper consists of **FIVE** questions. Attempt question ONE (Compulsory) and any other TWO questions.

**Do not write on the question paper.**

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## Question ONE

- |   |         |
|---|---------|
| a) (i)List TWO main safety awareness in laboratory                        | 2 marks |
| (ii)State TWO advantages of phenolic resin furniture in laboratory        | 2 marks |
| b) (i)State the importance of ventilation in the laboratory               | 2 marks |
| (ii)Name TWO advantages of stills   | 2 marks |
| c) State the function of the following glassware:                         |         |
| (a)Desiccators  | 1 mark  |
| (b)Condenser  | 1 mark  |
| (ii)Explain the disposal of biohazardous waste in the laboratory          | 2 marks |
| d) (i)Describe the working principle of a spring balance                  | 2 marks |
| (ii)State the advantages of stainless steel tray in laboratory            | 2 marks |
| e) (i)State the working principle of a mercury barometer                  | 2 marks |
| (ii)List FOUR types of laboratory furniture materials                     | 2 marks |
| f) (i)Describe the working principle of a galvanometer                    | 2 marks |
| (ii) State TWO reasons for storing chemicals away from sunlight and heat. | 2 marks |
| g)(i)Describe the purpose of storing a chemical in secondary containment  | 2 marks |
| (ii)State TWO advantages of formalin fixative                             | 2 marks |

h) Name two types of seamless flooring materials

2 marks

### **Question TWO**

(a) Explain general technique for cleaning laboratory glassware

5 marks

(b) Discuss Hazardous materials storage requirements

5 marks

(c) Describe the use of platinum ware in the laboratory

5 marks

### **Question THREE**

(a) Explain the process of distillation

5 marks

(b) Explain the operation procedure of a spectrophotometer

5 marks

(c) Describe the characteristics of a good laboratory floor

5 marks

### **Question FOUR**

(a) Outline the technique of preparing a chemical solution using a solid dissolved in liquid

6 marks

(b) Explain the operation of a unequal-arm balance

5 marks

(c) Discuss the importance of ventilation in the laboratory

4 marks

### **Question FIVE**

(a) Discuss ways of minimizing various categories of laboratory Hazards

6 marks

(b) Explain the working principle of a de-ionizer

5 marks

(c) Outline the formulation of formalin fixative

4 marks

