



# TECHNICAL UNIVERSITY OF MOMBASA

## Faculty of Applied and Health Sciences

**DEPARTMENT OF PURE AND APPLIED SCIENCES**  
UNIVERSITY EXAMINATION FOR THE DEGREE OF BACHELOR OF  
TECHNOLOGY IN APPLIED CHEMISTRY  
BACHELOR OF TECHNOLOGY IN INDUSTRIAL MICROBIOLOGY AND  
BIOTECHNOLOGY

### **ACH 4104 /SBT 2178 : LABORATORY SAFETY / PRACTICE MANAGEMENT**

SPECIAL/SUPPLEMENTARY EXAMINATION

FEBRUARY 2013 SERIES 2  
HOURS

Instructions to candidates:

This paper consist of **FIVE** questions

Answer question **ONE** (compulsory) and any other **TWO** questions

#### **Question ONE**

- a) (i) What is the function of the laboratory exit way (3marks)  
(ii) What is the disadvantage of vinyl floor tiles (3marks)
- b) (i) Outline the FOUR principles of safety (2marks)  
(ii) State FOUR advantages of water as a fire extinguishing agent. (2marks)  
(iii) Explain the role of ground fault circuit interrupters (GFCIS) in the prevention of electrical shocks in the laboratory (3marks)  
(iv) Explain the use of lab coats for personal safety in the laboratory. (2marks)  
(v) Explain how you would offer first-aid to a person whose skin and eyes have been exposed to chemicals (2marks)
- c) State the types of records in analytical laboratories (2marks)

- d) Define standard operating procedure (SOP) **(2marks)**
- e) Outline FOUR roles of Good Laboratory Practices (GLPs) **(4marks)**
- f) (i) Write the abbreviation, 'LIMS' in full. **(1mark)**
- (ii) Explain the main benefit of a LIMS. **(4marks)**

### **Question TWO**

- a) Outline the THREE basic rules to obey when taking chemicals from a bottle. **(3marks)**
- b) Determine the molarity of a solution made by dissolving 20.0g of NaOH in sufficient water to yield a 482cm<sup>3</sup> solutions. **(12marks)**
- c) Calculate the volume of 5.5m of NaOH required to prepare 300ml of 1.2M NaOH. **(5marks)**

### **Question THREE**

- a) What is a radioisotope tracer? **(2marks)**
- b) State the FIVE sources of radiation. **(5marks)**
- c) Explain the following:
- (i) Therapeutic applications of radioisotope tracers. **(4marks)**
- (ii) Measuring and testing applications of radioisotope tracers. **(8marks)**

### **Question FOUR**

- a) Explain why instrument performance checks should be done during the routine use. **(6marks)**
- b) (i) Explain the role of irradiation of samples **(3marks)**
- (ii) Explain why addition of antioxidants to liquid and solution samples is important. **(3marks)**
- (iii) Explain the waste water disposal rules. **(4marks)**
- c) Outline the purpose of scientific reporting. **(4marks)**

### **Question FIVE**

- a) State the FOUR classes of fire in the laboratory. **(4marks)**

- b) Describe each class of fire mentioned in (a) above **(8marks)**
- c) Give TWO examples of each class of fire mentioned in (a) above. **(8marks)**