



TECHNICAL UNIVERSITY OF MOMBASA

FACULTY OF APPLIED AND HEALTH SCIENCES

DEPARTMENT OF PURE & APPLIED SCIENCES

UNIVERSITY EXAMINATION FOR:

BACHELOR OF TECHNOLOGY IN MICROBIOLOGY/
BACHELOR OF TECHNOLOGY IN APPLIED CHEMISTRY

ACH4104 : LABORATORY SAFETY AND MANAGEMENT

END OF SEMESTER EXAMINATION

PAPER 1

SERIES: APRIL 2016

TIME: 2 HOURS

DATE: 8 May 2016

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.

Question one

- a)
 - i. Define first aid? (2 marks)
 - ii. Define chemical hazards? (2 marks)
- b)
 - i. Outline THREE prudent practices in chemical safety guidelines. (6 marks)
 - ii. Give FOUR types of fire extinguishers and the type of fire they are effective against. (4 marks)

- c) State the FOUR materials that are suitable for the construction of bench tops in a chemical laboratory. (4 marks)
- d) Briefly discuss:
- Alpha radiation.
 - Beta radiation.
 - Gamma and x-ray radiation (6 marks)
- e) State SIX examples of laboratory ware. (3 marks)
- f) Give 3 items that should be recorded in the laboratory notebook. (3 marks)

Question two

- a) Briefly discuss the applications of isotopic tracers in: (6 marks)
- Chemical research
 - In industry
- b) Discuss THREE items in good laboratory practices/ laboratory best practices. (9 marks)
- c)
- Define laboratory information system (LIMS). (2 marks)
 - Give THREE functions of LIMS. (3 marks)

Question three

- a)
- Define standard operating procedures (SOPS). (6 marks)
 - Outline the roles of laboratory reports. (6 marks)
- b) In a filing arrangement. Discuss the alphabetic arrangements of names. (8 marks)

Question four

- a) Outline the FIVE objectives of management by objectives (7.5 marks)
- b) Outline the FIVE advantages of management by objectives (7.5 marks)
- c) Outline FOUR disadvantages of management by objectives (5 marks)

Question five

- a) Define the term 'molarity'. (3 marks)
- b) Determine the molarity of a solution made by 10g of NaOH in sufficient water to yield 500m/s solution. (5 marks)
- c) List and explain the steps in a sample analysis. (7 marks)
- d) Explain how radioactive isotopes are used to establish the ages of objects (5 marks)