



# MURANG'A UNIVERSITY OF TECHNOLOGY

## SCHOOL OF PURE AND APPLIED SCIENCE

DEPARTMENT OF APPLIED SCIENCE

UNIVERSITY MASTERS EXAMINATION

2017/2018 ACADEMIC YEAR

EXAMINATION FOR MASTER OF SCIENCE IN CHEMISTRY

ACH 623: RESEARCH METHODS

DURATION: 3 HOURS

DATE: 23<sup>RD</sup> APRIL 2018

TIME: 2.00 – 5.00PM

### Instructions to Candidates:

1. Answer any **four** questions. Each question carries a total of 25 marks.
2. Mobile phones are not allowed in the examination room.
3. You are not allowed to write on this examination question paper.

**ANSWER ANY FOUR QUESTIONS. EACH QUESTION CARRIES A  
TOTAL OF 25 MARKS**

**QUESTION ONE**

- a) Distinguish basic from applied research (5 marks)
- b) Explain the steps in experimentation (10 marks)
- c) Outline the characteristics of a well-planned research experiment (10 marks)

**QUESTION TWO**

- a) Discuss the following referencing styles
  - i. Havard (5 marks)
  - ii. Psychological Association (APA) (5 marks)
  - iii. The Oxford (5 marks)
- b) Examine the methods of communicating/disseminating research results (10 marks)

**QUESTION THREE**

- a) Compare and contrast probability and non-probability samples (5 marks)
- b) Describe the methods used in probability sampling (10 marks)
- c) Explain the main steps in proposal writing (10 marks)

**QUESTION FOUR**

- a) Discuss the strengths and limitations of primary and secondary data (10 marks)
- b) Explain the main principals of bio-ethics (15 marks)

**QUESTION FIVE**

- a) Compare and contrast qualitative and quantitative research methods (15 marks)
- b) It is important to write research proposal before engaging in any field of research exercise in chemistry. Appraise this statement (10 marks)