



UNIVERSITY EXAMINATIONS

SECOND SEMESTER 2023/2024 ACADEMIC YEAR

**FOURTH YEAR EXAMINATION FOR THE DEGREE
OF BACHELOR OF SCIENCE (GENERAL)**

CHEM 429: RESEARCH METHODS AND SEMINARS I

STREAM: R

TIME: 2 HRS

DAY: WEDNESDAY [11.30A.M -1.30P.M] DATE: 10/04/2024

THIS QUESTION PAPER CONSISTS OF THREE (3) PAGES

PLEASE DO NOT OPEN UNTIL THE INVIGILATOR SAYS SO.

INSTRUCTIONS: ATTEMPT ALL QUESTIONS**QUESTION ONE CARRIES 30 MARKS WHILE THE OTHERS CARRY 20 MARKS EACH****QUESTION ONE (30 MARKS)**

- a) Define the following terms
- i. Justification of study (1 Mark).
 - ii. Hypothesis testing (1 Mark)
 - iii. APA in- text citation (1 Mark)
 - iv. Confounding variable
 - v. Research ethics (1 Mark)
- b) Distinguish between
- i) Population and a sample (2 Marks)
 - ii) Probability sampling and non probability sampling (2 Marks)
- iii) Student's t test and ANOVA (2 Marks)
- i. Differentiate between validity and reliability of measurements (2 Marks).
 - ii. What is meant by "operationalizing" variables (2 Marks)
 - iii. What do you understand by the term ' frequency distribution table' (2 Marks)
- c) Define the term data analysis as commonly used in research (2 Marks)
- i) What is the difference between the Descriptive and Inferential statistical Methods using an example in each case (4 Marks)
- d) What is sampling error and why is it important? (2 Marks)
- e) Describe the factors to Consider with Interpretation of Finding (3 Marks)
- f) Outline sources of seminar presentation (2 Marks)

QUESTION TWO (20 MARKS)

- a) Discuss the purpose of literature review (8 Marks)
- b) State the factors that informs the choice of a research design (5 Marks)

Briefly describe the components of a research report (7 Marks)



QUESTION THREE (20 MARKS)

- a) Describe the characteristics of the experimental design. **(6 Marks)**
- b) Describe the various methods of data collection **(5 Marks)**
- c) Outline levels of measurements in research **(4 Marks)**
- d) Discuss two Principles of ethics applicable to research **(5 Marks)**

