"Investing in Africa's Future"

COLLEGE OF HEALTH, AGRICULTURE & NATURAL SCIENCES
DEPARTMENT OF BIOMEDICAL AND LABORATORY SCIENCES
BACHELOR OF MEDICAL LABORATORY SCIENCES HONOURS

NSHA204 RESEARCH METHODS AND ETHICS IN HEALTH CARE
END OF FIRST SEMESTER FINAL EXAMINATIONS

NOVEMBER 2025

LECTURER: Dr S L Mutambu

DURATION: 3 HOURS

INSTRUCTIONS

1. Write your candidate number on the space provided on top of each page
2. Answer **all** questions in section A on the question paper.
3. Answer **all** questions in section B on separate answer sheets provided.
4. Answer any **3** questions in section C on separate answer sheets provided
5. The mark allocation for each question is indicated at the end of the question
6. Credit will be given for logical, systematic and neat presentations in sections B and C

SECTION A

TRUE (T) OR FALSE (F) QUESTIONS [20 MARKS]

Answer **all questions** by encircling the correct response **T** for **TRUE** or **F** for **FALSE** for each statement in all the questions. Each correct response is allocated a quarter mark.

1. Types of research can be based on:
- T F a) A study system
- T F b) Study inquiry mode employed
- T F c) Study site
- T F d) Study sample

2. The following are types of Research Bias:
- T F a) Selection bias
- T F a) Recall bias
- T F b) Researcher bias
- T F c) Blinding bias

3. Longitudinal design means:
- T F a) A study completed far away from where the researcher lives
- T F b) A study with two contrasting cases
- T F c) A study completed over a distinct period of time to map changes
- T F d) A study done in the rural communities

4. Concerning Privacy and Consent:
- T F a) Participants can withdraw from a study at any time without penalty
- T F b) Informed consent must be documented, even in verbal-only studies
- T F c) Researchers can use participant data for future studies without additional consent
- T F d) Data encryption is one method used to protect participant confidentiality

5. Some of the tools used to collect data are:
- T F a) Focus group discussions
- T F b) Case studies
- T F c) Interviews
- T F d) Expert opinion

6. A theory:
- T F a) Is a belief or assumption about how things relate to each other
- T F b) Establishes a cause-and-effect relationship between variables with a purpose of explaining and predicting phenomena
- T F c) Is based on inductive reasoning
- T F d) Is a concrete, specific statement about the relationships between Phenomena

7. Analysed data can be presented in the form of:

T F a) Histograms
T F b) Frequency distribution
T F. c) Root and leaf plots
T F d) Bar graph

8. Concerning Participant Rights**:**

T F a) They have the right to withdraw from a study at any time without giving a reason
T F b) Researchers must inform participants of any new risks discovered during the study
T F c) They are not entitled to know the results of the study they were involved in
T F d) Compensation for participation is considered coercive and unethical.

9. Regarding Ethnography:

T F a) The purpose of ethnographic research is to try and understand what occurs naturally in a setting and to interpret the data gathered to see what conclusion could be drawn from the data
T F b) It relies on collection of data from the natural environment
T F c) Researchers study how the behaviour of individuals is influenced or mediated by the culture in which they live
T F d) Human behaviour can be understood properly if studied in the setting in which it occurs

10. The advantages of descriptive studies are:

T F a) The people under study are unaware that they are being studied
T F b) They are more expensive and time consuming than quantitative studies
T F c) They collect a large amount of data for detailed studying
T F d) Since they are descriptive, they are used to start a research

11. In Health Research Ethics:

T F a) Beneficence refers to the obligation to do good and promote participant welfare
T F b) Non-maleficence means researchers can cause harm if the study has scientific value
T F c) Justice ensures that all participants receive equal treatment during the study
T F d) Ethical principles apply only to clinical trials, not observational studies

12. The following are various types of research:

T F a) Descriptive research
T F b) Conventional research
T F c) Implied research
T F d) Correlational research

13. The advantages of cross-over Randomized Control Trials (RCT) are:

T F a) All participants serve as own controls and error variance is reduced, thus reducing sample size needed
T F b) All participants receive treatment (at least some of the time)
T F c) Statistical tests assuming randomisation can be used
T F d) Blinding cannot be maintained

14. The control of effects of extraneous variables on the Dependent Variable in true experimental designs can be ascertained through:
T F a) Matching
T F b) Counterbalancing
T F c) Dilution effects
T F d) Homogeneity using statistical tests

15. The following are important types of Quasi-Experimental designs:
T F a) Pretest-posttest non-equivalent design
T F b) Non-equivalent before - after design
T F c) Time-series design
T F d) Posttest equivalent design

16. Concerning Sampling and Validity:
T F a) Purposive sampling is a non-probability method used to select participants with specific characteristics
T F b) External validity refers to how well study results can be generalized to other populations
T F c) Random sampling guarantees that every participant will be included in the study.
T F d) Internal validity is concerned with the accuracy of measuring tools, not the study design

17. Sample size depends on:
T F a) Population size
T F b) Study area
T F c) The t-test
T F d) Confidence level

18. In Health Research Ethics:
T F a) Informed consent must be obtained before involving participants in any health research
T F b) Ethical approval is optional if the research poses minimal risk to participants
. T F c) Confidentiality means that researchers can share participant data with collaborators freely
T F d) Vulnerable populations require additional ethical safeguards during clinical trials

19. Ethics are:
T F a) Moral Principles
T F b) What is good and bad
T F c) What is right and wrong
T F d) Based on value system

20. Common ethical dilemmas can be:

T	F	a) Handling sensitive patient data (e.g., HIV status, genetic results)
T	F	b) Accidental disclosure of confidential information
T	F	c) Pressure to alter or withhold results for external interests
T	F	d) Storage and secondary use of biological samples without consent

.SECTION B

SHORT ANSWER QUESTIONS [20 MARKS]

Answer all questions in this section

1. State any five (5) stages of the research process. (5marks)

2. List five (5) biases that occur in research studies. (5 marks)

3. Name five (5) characteristics of qualitative data. (5marks)

4. List any five standards that govern the profession of Medical Laboratory Scientists. (5marks)

SECTION C

LONG ESSAY ANSWERS [60 MARKS]

Answer any 3 questions in this section on separate answer sheets provided. Each question carries 20 marks.

1. Discuss how proper data analysis and presentation in laboratory research influence clinical decision-making and healthcare outcomes. (20 marks)

2. Giving examples, explain the importance of ethical principals in clinical research and how they protect participants. (20 marks)

3. Discuss sampling techniques suitable for disease surveillance and their limitations. (20 marks)

4. Explain the importance of ethics review boards in health research. In your answer, discuss their composition, qualities, and the review process. (20 marks)

5. Giving examples, discuss in detail the key features of experimental designs listed below:

a) Manipulation or Trial (7 marks)
b) Control (6 marks)

c) Randomization (7 marks)

END