

CANDIDATE NUMBER



"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 RESEARCH

END OF FIRST SEMESTER FINAL EXAMINATIONS

NOVEMBER 2023

LECTURER: Dr S. MUTAMBU

DURATION: 3 HOURS

INSTRUCTIONS

1. Write your candidate number on the space provided on top of each page
2. Answer **all** questions in sections A on the question paper.
3. Answer **all** questions in section B on separate answer sheets provided.
4. Answer any **2** 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]

Circle True (T) **OR** False (F) onto this question paper. Each question carries *one (1) mark*.

1. 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 graphs |

2. 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. Therefore 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. |

3. The logical steps of conceptualization of the research process can either be a systematic or cyclic series of these logical steps:

- | | | |
|---|---|--------------------------------------|
| T | F | a. Identifying the problem |
| T | F | b. Formulating a theory |
| T | F | c. Developing a research plan |
| T | F | d. Collecting and analysing the data |

4. 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 |

5. All of these are ethical codes:

- | | | |
|---|---|---|
| T | F | a. Hippocratic Oath – 5th century BC |
| T | F | b. Declaration of Geneva - 1948 |
| T | F | c. Universal Declaration of Human Rights-1948 |
| T | F | d. The Universal Declaration of ethics 1952 |

6. The advantages of descriptive studies are:

- | | | |
|---|---|---|
| T | F | a. The people under study are unaware that they are being studied so they act naturally as they do in everyday situation. |
| 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. |

7. 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

8. 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

9. Quantitative research approaches have:

- T F a. Clearly stated questions
- T F b. Rational hypothesis
- T F c. Small samples
- T F d. Developed research procedures

10. 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

11. Experimental designs have these key features:

- T F a. Manipulation or Trial
- T F b. Control
- T F c. Randomization
- T F d. Data collection tools

12. 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

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 four main areas that health care providers must consider when evaluating justice are:

- T F a. Fair distribution of scarce resources
- T F b. Competing needs
- T F c. Rights and obligations
- T F d. Potential conflicts with established legislations

15. Research issues that give rise to ethical concerns include:

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|---|---|---------------------------|
| T | F | a. Stem Cell Research |
| T | F | b. Research Cloning |
| T | F | c. Genome Project Results |
| T | F | d. Fertility Research |

16. The following are unethical acts:

- | | | |
|---|---|---|
| T | F | a. A doctor prescribing or dispensing secret remedial agents of which he does not know (composition, manufacture and use). |
| T | F | b. A doctor assisting or being a party to either infliction of mental or physical trauma or concealment of torture by another person. |
| T | F | c. Practising euthanasia. |
| T | F | d. Dispensing of drugs and appliances by physicians. |

17. Features of Qualitative Data:

- | | | |
|---|---|--|
| T | F | a. Associated with details |
| T | F | b. Implemented when data cannot be segregated into well-defined groups |
| T | F | c. Collected data can just be observed and not evaluated |
| T | F | d. Examples: Scents, Appearance, Beauty, Colors, Flavors, etc. |

18. Key Questions to be answered about a proposal include:

- | | | |
|---|---|--|
| T | F | a. Does it specify the conditions one wishes to change? |
| T | F | b. Does it define the gaps in existing programs, services, or knowledge? |
| T | F | c. Does it include appropriate statistical data about the frequency and severity of the problem? |
| T | F | d. Does the principal Investigator live in the study site area? |

19. 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 |

20. 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 |

SECTION B: SHORT ANSWER QUESTIONS [40 MARKS]

Answer all questions in this section

1. Giving examples, write short notes on Pre-Experimental designs. *(10 marks)*
2. Independent Ethics Committees/Boards are established by institutions to review the **ethical** and **scientific** merits of research protocols. Discuss the types of research protocol reviews that are conducted by Independent Ethics Committees/Boards. *(10 marks)*
3. You have been given a list of values shown below:

10,13,15,19,20,25,29,32,33,35,36,39,44,47.
 - a. Construct a stem and leaf plot using these values. *(5 marks)*
 - b. Make a frequency distribution table showing how many tens, twenties, thirties, and forties you have. *(5 marks)*
4. Giving examples, briefly compare and contrast Pure (Basic) research and Applied research. *(10 marks)*

SECTION C: LONG ESSAY QUESTIONS (40 marks). Answer any TWO questions

1. Giving examples, discuss the differences between Qualitative and Quantitative research. *(20 marks)*
2. The involvement of medical laboratories in Biomedical Research will usually focus on analysis of tissue or fluid specimens. This is associated with some important and unique ethical issues that uniquely impact Laboratory Practice.

Giving examples related to the Medical Laboratory Services, discuss how the three basic principles of Respect, Justice, and Beneficence are important in Laboratory Practice. *(20 marks)*
3. Giving examples, discuss in detail the types of sampling techniques that are used in Probability Sampling. *(20 marks)*
4. Name the players and give an overview of each player's role in New Prevention Technologies Research. *(20 marks)*

END