**NATIONAL UNIVERSITY OF LESOTHO**

**FACULTY OF AGRICULTURE**

**ANIMAL SCIENCE DEPARTMENT**

**ANS 3501: ANIMAL EXPERIMENTATION & RESEARCH TECHNIQUES**

**SUPPLEMENTARY EXAMINATION**

**AUGUST, 2023**          **MARKS: 100**          **TIME: 3 HOURS**

**Instructions:**

- Answer all questions
- For Section A choose the correct answer
- Begin each question on a new page

# SECTION A

[1] Research refers to:
- a. A scientific method used to expand knowledge in any field of study
- b. A logical procedure of data collection
- c. Systematic observation of events
- d. Quantitative collection of data from a study.

[2] Identify the study type whose main objective is to acquire knowledge.
- a. Diagnostic
- b. Descriptive and Diagnostic
- c. Exploratory
- d. Descriptive

[3] Identify the first step required in order to pursue research.
- a. Formulating a research question
- b. Developing a research design
- c. Deciding about the data analysis procedure
- d. Formulating a research hypothesis

[4] Identifying causes of a problem and possible solution to a problem is
- a. Pilot study
- b. Field Study
- c. Diagnostic study
- d. Action study

[5] A statement of the quantitative research question should:
- a. Specify the variables of interest
- b. Help the research in selecting appropriate participants, research methods, measures, and materials
- c. Extend the statement of purpose by specifying exactly the question(s) the researcher will address
- d. All the above

[6] Exploratory studies are typically:
- a. Qualitative
- b. Experimental
- c. Random
- d. Correlation

[7] Literature review is considered:
- a. Critical review of primary data
- b. Critical discussion of relevant literature to the problem
- c. Critical discussion about the topic of the study
- d. Sharing of facts from different writers

[8] The reliability of a measuring instrument is indicated by its:
    a. Consistency
    b. Coherence
    c. Precision
    d. Testability

[9] Fertilizer application will cause rapid growth of fodder. In this statement, "fertilizer" could be described as the:
    a. Extraneous variable
    b. Dependent variable
    c. Controlling variable
    d. Independent variable

[10]    The depth of any research can be judged by the …
    a. Total expenditure on research
    b. Research title
    c. Research duration
    d. Research objectives

[20]

## SECTION B

## QUESTION 1

Differentiate the following terms as applied in research and give examples:

a. Cross-sectional survey vs Longitudinal survey
b. Null hypothesis vs Alternative hypothesis
c. Structured interview vs Unstructured interview
d. Response variable vs Extraneous variable
e. Probability sampling vs Non-probability                            [30]

## QUESTION 2

a) Describe the term 'research problem', and explain the importance of identifying it in planning research.                            [5]
b) Define the term "Research Design" and explain its significance.    [5]

c) The success of data collection process is highly influenced by proper design of the study to minimize errors. Discuss the possible sources of error in taking measurements in research.                            [10]

## QUESTION 3

a) A number of tools can be used for data collection process in research. Describe any two data collection tools, and state two (2) pros and cons of using each tool in agricultural research.                            [10]

b) Uncontrol usage of veterinary drugs in livestock production has become a serious problem due to the effects it has such as development of antimicrobial resistance. As an Animal Scientist, design a small study to assist a farmer with a flock of twenty (20) ewes to evaluate the effectiveness of a drug which is claimed to increase productivity in sheep.                            [20]