∏AMIBIA U∏IVERSITY
OF SCIE∏CE A∏D TECH∏OLOGY

FACULTY OF HEALTH, NATURAL RESOURCES AND APPLIED SCIENCES

DEPARTMENT OF AGRICULTURAL SCIENCES AND AGRIBUSINESS

QUALIFICATION: BACHELOR OF SCIENCE IN AGRICULTURE	
QUALIFICATION CODE: 07BAGA	LEVEL: 7
COURSE CODE: RME620S	COURSE NAME: BASIC RESEARCH METHODOLOGY
DATE: JULY 2024	
DURATION: 3 HOURS	MARKS: 100

SECOND OPPORTUNITY / SUPPLEMENTARY EXAMINATION QUESTION PAPER	
EXAMINER(S)	Dr Thinah Moyo
MODERATOR:	Dr Tendai Nzuma

INSTRUCTIONS
1. Answer ALL five (5) questions. 2. Please write neatly and legibly. 3. Number the answers clearly. 4. Show all your working.

PERMISSIBLE MATERIALS
1. Examination question paper
2. Answer book
3. Calculators

THIS QUESTION PAPER CONSISTS OF 4 PAGES (Including this front page)

QUESTION 1   **[20 Marks]**
(a) How would you describe a research proposal?   (5 Marks)

(b) State four reasons why research proposals are written.   (4 Marks)

(c) Explain the purpose of a good literature review in three key points.   (6 Marks)

(d) Define the acronym 'SMART' and briefly explain its meaning as it applies to research
    objectives.   (5 Marks)

QUESTION 2   **[20 Marks]**
(a) Define a population, a sample and a sampling frame.   (6 Marks)

(b) What is the difference between quantitative and qualitative research methods? (2 Marks)

(c) Explain why research is considered to be an iterative process.   (2 Marks)

(d) Define mixed-methods research?   (2 Marks)

(e) What statistic reports the relative standing of a value in a set of data?   (2 Marks)

(f) List incorrect citations from the paragraph below. Also explain why each citation you listed is
    incorrect.
        According to (Scoones, 2009), diverse livelihoods emerge from multiple activities
        interacting with each other. Several factors influence smallholder farmers' choice of
        livelihood strategies and dependence on agriculture (Ellis, 1998; Alemu 2012). Sikhweni
        & Hassan (2014) state that apart from understanding rural households' preferred
        livelihood strategies, underlying determinants driving them towards any of the livelihood
        choices are equally important for an investigation.   (6 Marks)

QUESTION 3   **[20 Marks]**
You take a random sample of ten car owners and ask them, "To the nearest year, how old is your
current car?" Their responses are as follows: 0 years, 1 year, 2 years, 4 years, 8 years, 3 years, 10
years, 17 years, 2 years, 7 years.
(a) Calculate the standard deviation of this sample to the nearest year. Show all steps in your
    calculation.   (15 Marks)

$$s = \sqrt{\frac{\sum (x - \bar{x})^2}{n - 1}}$$

Hint:

(b) What is the mode and median for the age of the cars?   (5 Marks)

QUESTION 4 [20 Marks]

(a) A Real Estate Agent tells you that the average cost of houses in a town is NAD2,176,000. You want to know how much the prices of the houses may vary from this average. What measurement do you need? (2 Marks)
   A. standard deviation
   B. interquartile range
   C. variance
   D. percentile

(b) To the nearest thousandth, what is the mean of the following data set? 0.003, 0.045, 0.58, 0.687, 1.25, 10.38, 11.252, 12.001 (2 Marks)

(c) To the nearest tenth, what is the median of the following data set? 18, 21, 17, 18, 16, 15.5, 12, 17, 10, 21, 17. (2 Marks)

(d) Define a percentile. (2 Marks)

(e) Identify which of the following options is a quantitative variable and explain why.(2 Marks)
   A. the colour of an automobile
   B. a person's region of residence
   C. a person's postal code
   D. a person's height, recorded in centimetres
   E. choices (C) and (D)

(f) From the scenario in (e) above, which variables are qualitative and why? (6 Marks)
   A. the colour of an automobile
   B. a person's region of residence
   C. a person's postal code

(g) You took a survey of 100 people and found that 60% of them like chocolate and 40% do not. Which of the following results presentations gives the distribution of the "chocolate versus no chocolate" variable? (4 Marks)
   A. a table of the results
   B. a pie chart of the results
   C. a bar graph of the results
   D. a sentence describing the results
   E. all of the above

QUESTION 5 [20 Marks]

(a) State and describe 5 common data distribution patterns in statistics. (10 Marks)

(b) If the formula for a regression line is **y= 9x + 17**. Describe the components of this line and the interpretation thereof. (5 Marks)

(c) An Analysis of Variance (ANOVA) uses the following null and alternative hypotheses:

H_0: All group means are equal.

H_1: At least one group mean is different from the rest.

Whenever you perform an ANOVA, you will end up with a summary table that looks as follows:

Source	Sum of Squares (SS)	df	Mean Squares (MS)	F	P-value
Treatment	192.2	2	96.1	2.358	0.1138
Error	1100.6	27	40.8		
Total	1292.8	29			

Interpret the F-statistic and the corresponding p-value of this ANOVA result.   (5 Marks)

THE END

Total Marks: 100