ПAMIBIA UПIVERSITY
OF SCIEПCE AПD TECHПOLOGY

FACULTY OF HEALTH, NATURAL RESOURCES AND APPLIED SCIENCES

DEPARTMENT OF AGRICULTURE AND NATURAL RESOURCE SCIENCES

QUALIFICATION : BACHELOR OF SCIENCE IN AGRICULTURE	
QUALIFICATION CODE: 07BAGA	LEVEL: 7
COURSE CODE: RME620S	COURSE NAME: RESEARCH METHODOLOGY
DATE: NOVEMBER 2022	
DURATION: 3 HOURS	MARKS: 100

FIRST OPPORTUNITY 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.
5. Round your answers to two decimal places for all calculations.

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

THIS QUESTION PAPER CONSISTS OF 3 PAGES (Excluding this front page)

QUESTION 1   **[20 Marks]**

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

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

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

(d) You are interested in knowing what percent of all households in a large city have a single woman as the head of the household. To estimate this percentage, you conduct a census survey with 300 households and determine how many of these 300 are headed by a single woman. In this example,

    (i)   what is the population?   (2 Marks)

    (ii)   what is the sample?   (2 Marks)

    (iii)   what is the parameter?   (2 Marks)

    (iv)   what is the variable?   (2 Marks)

    (v)   what is the statistic?   (2 Marks)

(e) List incorrect citations from the paragraph below.

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.   (3 Marks)

(f) Is this a correct way of listing this journal article using APA 6th Edition referencing style? Francis, D. & Moyo, T. (2022). Making minds: What's wrong with education, and what should we do about it? Journal of Teaching and Teacher Education, 11(3), 229-241. (1 Mark)

QUESTION 2   **[20 Marks]**

(a) A large statistics class takes a midsemester examination worth a total of 100 points. The following is a random sample of 20 students' scores from the class.
Score of 98 points: 2 students
Score of 95 points: 1 student
Score of 92 points: 3 students
Score of 88 points: 4 students
Score of 87 points: 2 students
Score of 85 points: 2 students
Score of 81 points: 1 student

Score of 78 points: 2 students
Score of 73 points: 1 student
Score of 72 points: 1 student
Score of 65 points: 1 student

(a) To the nearest tenth of a point, what is the standard deviation of the exam score for the students in this sample? (15 Marks)

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

Hint:

(b) What is the mode and median class marks? (5 Marks)

QUESTION 3 [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) Which of the following is an example of a quantitative variable (also known as a numerical variable) and 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 (d) above, which variables are qualitative and why? (6 Marks)

(g) You took a survey of 100 people and found that 60% of them like chocolate and 40% don't. Which of the following results presentations gives the distribution of the "chocolate versus no chocolate" variable? (4 Marks)

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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 4 [20 Marks]

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

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

(c) Define correlation coefficient and state two known properties of this coefficient. (5 Marks)

QUESTION 5 [20 Marks]

(a) How would you best describe a research proposal? (5 Marks)

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

(c) Explain in 3 strong points the purpose of a good literature review. (6 Marks)

(d) An Analysis of Variance (ANOVA) uses the following null and alternative hypotheses:
H_0: All group means are equal.
H_A: 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

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