



NATION OPEN UNIVERSITY OF NIGERIA
SCHOOL OF EDUCATION
2024 1 EXAMINATION

Course Code: EDU 723

Course Title: Basic Research Methods in Education

Credit Unit: 2

Time Allowed: 2 hours

Instruction: Answer question ONE and any other two questions.

- Question1.** A researcher is interested in finding out whether students' variables (such as gender, age, socio-economic status of parents, and attitudes towards mathematics) influence their academic performance in mathematics, collected data from 202 students out of 1200 students in Abuja. Based on this study:
- i. Formulate a research topic for this study 2 marks
 - ii. State the general and four specific purposes of the study 5 marks
 - iii. Pose any four research question for the study. 4 marks
 - iv. Formulate four null hypotheses for the study. 4 marks
 - v. For each hypotheses. Identify the dependent and independent variables 8 marks
 - vi. State the most appropriate statistical techniques needed for testing each hypothesis. 4 marks
 - vii. Give proper technical names to the 202 and 1200 students that are mentioned in this study. 2 marks
 - viii. What type of research design is appropriate for this study? 1 mark
- 30marks**
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- Question2.**
- a. Explain briefly, five (5) steps involved in a literature review. 10marks
 - b. Identify and Explain with examples two (2) sources of literature review. 6 marks
 - c. Briefly Explain:
 - i. Theoretical review of literature 2 marks
 - ii. Empirical review of literature 2 marks
- 20marks**

Question3. Suppose a researcher wants to carry out a study on the relationship between students sex and their best colour and the result is given in the following table:

Sex	Students' best colour choice					Total
	Red	Blue	Green	Black	White	
Male	14	11	15	9	6	A
Female	10	12	8	16	9	B
Total	24	C	D	23	E	F

a.	Find the values of A.B.C.D.E and F.	6 marks
b.	Calculate the expected frequencies for all the cells in the table.	8marks
c.	Prepare a table of observed and expected frequencies for the data.	2 marks
d.	Determine the degrees of freedom for the analysis.	2 mark
e.	Assume that the calculated value is 10.89, while the critical value is 18.32. What will your decision concerning the relationship between sex and preferred colour?	2 mark
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Question4.	a. State 3 conditions under which it is most appropriate to use the following statistical techniques	
	(i) Independent t-test	3 marks
	(ii) Chi-square	3 marks
	(iii) Pearson product moment correlation	3 marks
	(iv) Point Biserial correlation.	3 marks
	b. Differentiate clearly between the following pairs:	
	i. Adopted and Adapted instruments	2 marks
	ii. Validity and reliability of an instrument	2 marks
	iii. Questionnaire and ability test	2 marks
	iv. Observation and interview for data collection	2 marks
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