NATIONAL OPEN UNIVERSITY OF NIGERIA

University Village, Plot 91, Cadastral Zone, Nnamdi Azikiwe Expressway, Jabi, Abuja

Faculty of Education

2023_1 POP EXAMINATION.

COURSE: Statistical Method I.
CODE: EDU821
DURATION: 3 Hours
INSTRUCTION: Answer Four (4) Questions. Questions one (1) is compulsory; then any other 3.

QUESTION 1: (Compulsory)

a) Study the table provided below; and answer the questions.

S/N	X	X-$\bar{X}$	$(X-\bar{X})^2$
1	15		
2	14		
3	11		
4	10		
5	9		
6	7		
7	4		

$\frac{1}{2}$ **Mark for each correct entry**

(i)   Complete columns X-$\bar{X}$ and $(X-\bar{X})^2$ **(7 Marks)**

(ii)   What is the value of $\bar{X}$ for the scores?   **(2 Marks)**

(iii)   Calculate $\sum(X-\bar{X})$ **(1 Marks)**

(iv)   Find the value of $\sum(X-\bar{X})^2$ **(2 Marks)**

b   (i) Define variance   **(2 Marks)**

   (ii) Calculate the Variance of the scores in table 'a'   **(2 Marks)**

   (iii) What is the standard deviation of the scores in table 'a'? **(3 Marks)**

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c (i) List 4 properties of a normal curve **(4 Marks)**

(ii) Explain what is meant by skewness of a curve. **(2 Marks)**

QUESTION 2

a) Briefly differentiate between the following:

i. Statistical method and educational statistics. **(2 Marks)**

ii. Statistics and statistical date. **(2 Marks)**

iii. Population and population sample. **(2 Marks)**

b (i) Define the term Kurtosis. **(1 mark)**

(ii) List the types of Kurtosis you know. **(3 Marks)**

(iii) Use annotated diagram to show the shapes of the types of Kurtosis listed in b(ii) above. **(5 Marks)**

QUESTION 3

The two sets of scores, X and Y are scores of mathematics and Physics scored by students in SSII. Use the scores to determine the relationship between the achievements of the students in both subjects.

X	2, 2, 6, 4, 3, 5, 4, 3, 1, 4, 6, 5, 2, 1, 3
Y	3, 3, 5, 4, 2, 4, 3, 2, 1, 5, 6, 4, 2, 2, 4

Hints: Use Pearson for calculation.
Assume critical value to be 0.51 at 0.95 level. **(15 Marks)**

QUESTIONS 4:

Observe the following scores obtained by Chemistry students in a class:
5, 9, 9, 12, 5, 9, 10, 6, 8, 10, 3, 10, 9, 7, and 5.

a (i) Arrange the scores in a frequency table. **(4 Marks)**

(ii) Which score has the highest frequency? **(1 Mark)**

b (i) Determine the score that represents the whole class. **(5 Marks)**

(ii) What is the difference between the highest score and the score in b(i)? **(2 Marks)**

(iii) What is the difference between the least score and the score in b(i) **(2 Marks)**

(iv) What is the difference between the most frequent score and the score in b(i) above? **(1 Mark)**

QUESTION 5

(a) Define the terms;

(i)	Population	**2 Marks**
(ii)	Parameter	**2 Marks**
(iii)	Estimate	**2 Marks**
(iv)	Sample	**2 Marks**

(b) Observe the scores 20, 10, 2, 8, 4, 7, 4, 9, 4, 3 and answer the questions below:

(i) What is the score with the highest frequency? **1 Mark**

(ii) Calculate the mean $(\bar{X})$ of the scores in the array **2 Marks**

(iii) What is the median score? **2 Marks**

(iv) What is the difference between the highest score and the rest? **2 Marks**