



NATIONAL OPEN UNIVERSITY OF NIGERIA

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

Faculty of Education

2021_2

COURSE: Statistical Method 1.

COURSE UNIT: 3

CODE: EDU 821

Duration: 3 HOURS

INSTRUCTION: Answer *Four (4)* Questions. Question 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 (7 Marks).*

(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 Mark)

(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)

- 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 data. (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 SS II. 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 r for calculation.
Assume critical value to be 0.51 at 0.95 level.
(15 Marks)

Question 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**