

D 70367

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Name.....

Reg. No.....

FIFTH SEMESTER B.Sc. DEGREE EXAMINATION, NOVEMBER 2019

(CUCBCSS—UG)

Statistics

STS 5D 03—BASIC STATISTICS

Time : Two Hours

Maximum : 40 Marks

Section A

*Answer all the five questions.*

*Each question carries 1 mark.*

1. Median of the set 6, 9, 4, 5, 8, 10, 12, 11 is \_\_\_\_\_.
2. Define range.
3. Subset of a sample space is called \_\_\_\_\_.
4. Define population.
5. Two events which cannot occur together are called \_\_\_\_\_.

(5 × 1 = 5 marks)

Section B

*Answer all the five questions.*

*Each question carries 2 marks.*

6. Define simple random sampling.
7. Differentiate between sampling and census.
8. State the principle of least squares.
9. State the classical definition of probability.
10. Define conditional probability  $P(A/B)$ .

(5 × 2 = 10 marks)

Section C

*Answer any three out of five questions.*

*Each question carries 5 marks.*

11. Find the standard deviation of the first  $n$  natural numbers
12. Explain sampling and non sampling errors.
13. Using frequency definition, prove that  $0 \leq P(A) \leq 1$  for any event  $A$ .

Turn over

14. Calculate the mean deviation about median for the following data : 8, 15, 33, 49, 19, 62, 7, 15, 95, 77.

15. For any two events A and B, prove that,  $P[(A \cap B^c) \cup (A^c \cap B)] = P(A) + P(B) - 2P(A \cap B)$ .

(3 × 5 = 15 marks)

### Section D

Answer any one out of three questions.

The question carries 10 marks.

16. Calculate the co-efficient of variation for the following data :

Class	:	10-20	20-30	30-40	40-50	50-60	60-70
Frequency	:	10	18	32	40	22	18

17. If A and B are independent events, prove that

(i) A and  $B^c$

(ii)  $A^c$  and  $B^c$  are also independent events.

18. For two variable x and y,  $-1 \leq r_{xy} \leq +1$ , where  $r_{xy}$  is the Pearson's co-efficient of correlation.

(1 × 10 = 10 marks)

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FIFTH SEMESTER B.A./B.Sc./B.Com./B.B.A. DEGREE EXAMINATIONS

(CUCBCSS - UG)

Open Course

STS 5D 03 - BASIC STATISTICS

Answer Key

I. Section A:

1.  $(8+9)/2 = 8.5$
2. Definition
3. event
4. definition
5. mutually exclusive or disjoint events

II. Section B:

6. Definition
7. Definitions of sampling and census.
8. statement
9. statement
10. definition

III. Section C:

11.  $\sqrt{\frac{n^2-1}{12}}$
12. explanation
13. explanation
14. Median =34. MD =27.2
15. proof

IV. Part D:

16. Mean = 42.14, SD = 14.06, CV= 33
17. Proof
18. Proof.