Reg. No. : ....

Name : ....

First Semester B.Sc. Degree Examination, June 2022

First Degree Programme Under CBCSS

Statistics

Complementary Course for Physics

ST 1131.2 — DESCRIPTIVE STATISTICS

(2020 Admission Onwards)

Time : 3 Hours

Max. Marks : 80

(Statistical Table and Calculator are permitted)

SECTION – A

Answer **all** questions. **Each** question carries **1** mark.

1. Write the formula for calculating standard deviation for a frequency distribution.

2. Find the coefficient of variation of a series if its arithmetic mean is 20 and variance is 25.

3. What is the empirical relationship between mean, median and mode?

4. What is meant by central tendency?

5. The arithmetic mean of 5,10 and 15 is ——————.

6. Name two measures of dispersion.

7. The square root of variance is known as ——————.

8. What are the limits of correlation coefficient?

9. Algebraic sum of the deviations of a set of observations from their mean is _____ .

10. The median of the data 35, 23, 45, 50, 80, 61, 92, 40, 52, 61 is _____ .

(10 × 1 = 10 Marks)

SECTION – B

Short Answer Type Questions. Answer any **eight** questions. **Each** question carries **2** marks.

11. Explain the merits and demerits of arithmetic mean as a measure of central tendency.

12. What is scatter diagram? Explain its uses.

13. State principle of least square.

14. Give four desirable properties of a good average.

15. Describe positive and negative correlation with examples.

16. Distinguish between absolute and relative measures of dispersion.

17. Distinguish between coefficient of variation and correlation coefficient.

18. What is the difference between a measure of dispersion and a measure of central tendency?

19. Define quartile deviation.

20. Given AM = 24.6, Mode = 26.1, find the value of the median for a moderately asymmetrical distribution.

21. What is exclusive and inclusive class interval?

22. What are the different sources of secondary data?

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23. Briefly explain about any two one dimensional diagrams.

24. Explain how to identify quartiles in a discrete series of observations.

25. Write the formula for identifying first four central moments.

26. What is meant by positive and negative skewed of data.

<div align="right">(8 × 2 = 16 Marks)</div>

SECTION – C

Short Essay Questions. Answer any **six** questions. **Each** question carries **4** marks.

27. Distinguish between arithmetic mean and weighted arithmetic mean.

28. What is Karl Pearson's coefficient of correlation? Show that correlation coefficient is independent of change of origin and scale.

29. Describe about frequency polygon.

30. What is Kurtosis? Write the moment formula for identifying kurtosis.

31. Describe how a straight line can be fitted to a given data.

32. Explain the importance of tabulation.

33. Differentiate correlation mid regression.

34. Describe briefly different types of classification.

35. What are ogives?

36. How do we identify skewness in the data graphically?

37. Write the properties of Karl Pearson's coefficient of correlation.

38. Explain Shepherd's correction of moments.

<div align="right">(6 × 4 = 24 Marks)</div>

SECTION – D

Long Essay questions. Answer any **two** questions. **Each** question carries **15** marks.

39. Distinguish between Primary and Secondary data. Explain the important methods of collecting primary data.

40. Compute Median for the following data:

Class:	0-10	10-20	20-30	30-40	40-50	50-60	60-70
Frequency:	8	12	20	23	18	7	2

41. Find the coefficient of variation and identify which group is more consistent.

Class:	10-20	20-30	30-40	40-50	50-60	60-70	70-80
Group I:	9	7	32	33	40	10	9
Group II:	10	20	30	25	43	15	7

42. Find the mean and standard deviation of the following data:

Group:	30-40	40-50	50-60	60-70	70-80	80-90	90-100
No. of membes:	3	7	12	15	8	3	2

43. What do you mean by curve fitting of a data, Fit a straight line for the following data?

X:	1	2	3	4	6	8
Y:	2.4	3	3.6	4	5	6

44. Calculate the coefficient of rank correlation from the following data.

X:	60	34	40	50	45	41	22	43	42	66	64	46
Y:	75	32	34	40	45	33	12	30	36	72	41	37

$$(2 \times 15 = 30 \text{ Marks})$$