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Reg. No. :

Name :

First Semester B.Sc. Degree Examination, March 2023

First Degree Programme under CBCSS

Statistics

Complementary Course for Mathematics

ST 1131.1 : DESCRIPTIVE STATISTICS

(2018-2021 Admission)

Time : 3 Hours

Max. Marks : 80

SECTION – A

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

1. Name the two kinds of statistical data and mention the sources of them.
2. What is meant by tabulation of data?
3. Explain the advantages of diagrammatic representation of data.
4. What are the important graphic presentations of statistical data?
5. Define population and sample.
6. Define central tendency.
7. Which measure of dispersion do you think most important? Justify.

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8. What do you mean by the moments of a data set?
9. Define scatter diagrams.
10. What do you mean by correlation?

(10 × 1 = 10 Marks)

SECTION – B

Answer any **eight** questions. Each question carries **2** marks.

11. What are the important types of classification of a data?
12. Discuss the advantages of sampling over census.
13. Distinguish between probability sampling and non-probability sampling.
14. Define stratified random sampling.
15. What do you mean by relative and cumulative frequency distributions?
16. What are the important measures of central tendency?
17. What are the merits and demerits of Arithmetic mean?
18. What are the desirable properties of a good measure of dispersion?
19. Define coefficient of variation.
20. Define skewness of a data.
21. What do you mean by curve fitting?
22. Define regression analysis.

(8 × 2 = 16 Marks)

SECTION – C

Answer any **six** questions. Each question carries **4** marks.

23. What are the points to be remembered while preparing a questionnaire?
24. Define simple random sample. Explain any method of selecting a simple random sample.
25. Establish the relationship between A.M, G.M and H.M.
26. Prove that S.D cannot be less than the M.D from the mean.
27. If the first four moments of a distribution about 4 are 1,4,10 and 45, find the mean and the first four central moments.
28. Define kurtosis. What are the important measures of kurtosis?
29. Explain the principle of least squares in curve fitting to fit $y = ab^x$.
30. Why there are two regression lines while analysing a bivariate data? When do they coincide?
31. Define the Karl Pearson's coefficient of correlation. What does it indicate when the value of this coefficient is zero?

(6 × 4 = 24 Marks)

SECTION – D

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

32. (a) Describe the construction of a Pie chart to a data.
- (b) Draw an ogive and hence find the median from the data of marks of 140 students

Marks	10-19	20-29	30-39	40-49	50-59	60-69	70-79	80-89	90-99
No.of studnets	7	15	18	25	30	20	16	7	2

33. (a) The following data gives the frequency distribution of the wages of 72 labours in a factory. Find the mean deviation about the mean and the coefficient of M.D.

Wage :	5-10	10-15	15-20	20-25	25-30	30-35	35-40	40-45	45-50
Labours:	2	22	19	14	3	4	6	1	1

- (b) Calculate the quartile deviation for the following data of annual income of families in thousands of rupees.

Income :	<499	500-999	1000-1999	2000-2999	>3000
No. of families :	5	25	40	20	10

34. (a) Find the correlation coefficient between X and Y from the following data.

X :	2	3	4	5	6	7	8
Y :	4	5	6	8	9	7	10

- (b) What are the different types of correlation? Discuss the Spearman's coefficient of correlation.

35. (a) In a bivariate study the lines of regression of Y on X and that of X on Y are given. Write the procedure to identify them.

- (b) To study the effect of rain on yield of wheat, the following results were obtained. Estimate the yield when the rainfall is 80 inches.

	Mean	S.D
Yield in pounds :	800	12
Rainfall in inches :	50	2

The correlation co-efficient $r = 0.80$

(2 × 15 = 30 Marks)