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S – 2675

Reg. No. :

Name :



First Semester B.Sc. Degree Examination, January 2024

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. What do you mean by primary data?
2. Define classification.
3. Explain the advantages of graphical representation of data.
4. Which is the positional measure of central tendency?
5. What are the demerits of Arithmetic mean?
6. Why Quartile deviation is called the semi- inter quartile range?
7. Define systematic sampling.
8. What is the value of the first central moment and first raw moment of a data?

P.T.O.

9. Around which value in a frequency distribution does the kurtosis is adjusted around?
10. Which is the point through which all the regression lines in a data pass?
- (10 × 1 = 10 Marks)**

SECTION – B

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

11. Explain briefly the important scales of measurements of a quantitative data.
12. Distinguish between sampling and non-sampling errors.
13. If the range of a data set is 40 with a coefficient of range 0.8, find the smallest and largest observations in the set.
14. Define coefficient of variation and explain its uses.
15. Name examples of some non-probability sampling designs.
16. How do you comment on the type of kurtosis with the of nature of moment coefficient of kurtosis β_2 ?
17. If the variance of n consecutive natural numbers is 24, what is the value of n ?
18. Find the mean deviation about the median of 8,15,53,49,19,62,7,15,95,77.
19. Which measure do you consider as the best measure of dispersion? Justify your claim.
20. What are the underlying assumptions of Karl Pearson's coefficient of correlation?
21. When do you go for computing rank correlation coefficient?
22. Define curve fitting.

(8 × 2 = 16 Marks)

SECTION – C

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

23. What are the points to be remembered in using a secondary data?
24. Define stratified random sample and mention its advantages.
25. Prove that Mean Deviation is minimum when deviation is taken from the Median.
26. Distinguish between absolute and relative measures of dispersion.
27. Compute the quartile deviation for the following data of 13 observations:
6,8,10,22,1,4,22,29,12,15,40,39,35.
28. If the mean and mode of a distribution are 7.5 and 10 respectively with the Karl Pearson's coefficient of skewness = -0.5 , find the variance of the distribution.
29. Define kurtosis. Explain the different measures of Kurtosis mentioning their ranges of variation.
30. Discuss the invariance property of correlation coefficient.
31. Why there are two regression lines? When do they coincide?

(6 × 4 = 24 Marks)

SECTION – D

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

32. (a) Discuss the merits and demerits of mean deviation.
- (b) A factory produces two types of electric lamps A and B. In a life testing experiment the following results were obtained. Compare the variability of lives.

| Life length (in hours) | Number of lamps A | Number of lamps B |
|---------------------------|----------------------|----------------------|
| 500–700 | 5 | 4 |
| 700–900 | 11 | 30 |
| 900–1100 | 26 | 12 |
| 1100–1300 | 10 | 8 |
| 1300–1500 | 8 | 6 |

33. For a distribution the mean is 10, variance is 16, $\beta_1 = 1$ and $\beta_2 = 4$. Obtain the first four moments about zero.

34. 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

35. Fit a parabola from the data by the method of least squares.

x: 1 2 3 4 5 6 7 8 9

y: 2 6 7 8 10 11 11 10 9

(2 × 15 = 30 Marks)