Reg. No. : .............................

Name : ..................................

First Semester B.Sc. Degree Examination, June 2022

First Degree Programme Under CBCSS

Statistics

Complementary Course for Mathematics

ST 1131.1 — DESCRIPTIVE STATISTICS

(2018-2019 Admission)

Time : 3 Hours

Max. Marks : 80

SECTION – I

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

1.   What is ordinal scale?

2.   Define secondary data.

3.   What is pie chart?

4.   Find the median of 10, 5, 25, 35, 20, 15, 10, 5, 10, 30.

5.   Write down the empirical relation between Arithmetic mean, Median and Mode.

6.   Define inter-quartile range.

7.   What is coefficient of variation?

8.   Define bar diagram.

9. What is the intersecting point of regression lines X on Y and Y on X?

10. State any two properties of regression coefficient.

<div align="right">(10 × 1 = 10 Marks)</div>

## SECTION – II

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

11. What is a questionnaire? List out properties of good questionnaire.

12. Explain a bar diagram. What are the different forms of bar graphs?

13. What is the difference between census survey and sampling survey?

14. Distinguish between multiple bar graph and subdivided bar graph.

15. What is cumulative frequency distribution? Explain the computation of cumulative frequency distribution table.

16. Explain the two non-probability sampling methods.

17. What is non-sampling error? How can you reduce it?

18. Show that sum of the difference of observations from arithmetic mean is equal to zero.

19. Define standard deviation. List any two uses of it.

20. What is kurtosis? Give any two measures of kurtosis.

21. Define scatter plots. What information on relationship between two variables can be obtained from a scatter plot?

22. Define Pearsons Coefficient of Correlation. How it is different from rank correlation?

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

## SECTION – III

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

23. Explain Nominal, Ordinal, Interval and Ratio scales of measurement with examples.

24. Define secondary data. List out some sources of secondary data. What are ithe precautions to be taken while choosing secondary data.

25. Draw less than and greater than ogives for following data. Find median also.

| Class | 0-10 | 10-20 | 20-30 | 30-40 | 40-50 | 50-60 |
|-----------|------|-------|-------|-------|-------|-------|
| Frequency | 6 | 15 | 20 | 12 | 7 | 3 |

26. The mean age of male teachers of a college is 45 and that of female teachers is 40. If the mean age of total teachers is 42, what percentage of female teachers are working in that college?

27. For the following data, calculate mean deviation about median.

    3, 7, 10, 15, 16, 17, 22

28. Explain skewness and kurtosis.

29. Establish the relationship between raw moments and central moments.

30. Define correlation between two variables. Explain various types of correlation.

31. Why there are two regression lines? Also explain how correlation coefficient can be calculated, if regression coefficients are given.

(6 × 4 = 24 Marks)

## SECTION – IV

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

32. (a) Explain different methods of collecting primary data.

    (b) Explain stratified sampling and systematic sampling with examples.

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33. Find arithmetic mean, median and mode for the following data :

| Class | 0-10 | 10-20 | 20-30 | 30-40 | 40-50 | 50-60 |
|-------|------|-------|-------|-------|-------|-------|
| Frequency | 8 | 14 | 16 | 15 | 7 | 3 |

34. Explain principle of least square. Also describe the procedure of fitting a straight line $y = ax + b$.

35. Define Spearman's rank correlation. If following data shows ranks given by three judges for 10 students in a particular competition, decide which pair of judges has more related evaluation?

| Judge A | 3 | 2 | 7 | 1 | 10 | 9 | 8 | 4 | 6 | 5 |
|---------|---|---|---|---|----|---|---|---|---|---|
| Judge B | 1 | 3 | 7 | 2 | 10 | 8 | 9 | 6 | 4 | 5 |
| Judge C | 2 | 8 | 3 | 7 | 10 | 5 | 9 | 4 | 1 | 6 |

(2 × 15 = 30 Marks)

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