(Pages : 4) **M – 1570**

Reg. No. : .....

Name : .....

Fifth Semester B.Sc. Degree Examination, December 2021

First Degree Programme Under CBCSS

Statistics

Open Course

ST 1551.8 – ESSENTIAL STATISTICS FOR SOCIAL SCIENCES

(2018 & 2019 Admission)

Time : 3 Hours Max. Marks : 80

(Use of calculator is permitted)

SECTION – A

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

1. What is pilot survey?
2. Find the coefficient of variation of a series if its arithmetic mean is 20 and variance is 25.
3. Following are the marks secured by 10 students in a test

   26,32,38,33,27,35,23,29,30,32. Find the median mark.
4. What is frequency polygon?
5. What is the difference between research hypothesis and statistical hypothesis?
6. Find the mode of the following frequency distribution

x:	1	2	3	4	5	6	7	8	9	10	11	12
y:	3	8	15	23	35	14	52	28	20	45	14	6

7. Define sampling frame.

8. Define probability.

9. What are the sources of secondary data?

10. Define opinion polls.

(10 × 1 = 10 Marks)

SECTION – B

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

11. What are the objectives of classification?

12. Give the properties of normal distribution.

13. Write the probability density function of the normal distribution.

14. How will you construct a histogram? Differentiate a histogram with a bar diagram.

15. If X has a Poisson distribution with parameter 2, Find $P(X = 0)$.

16. Define the size and power of test.

17. Find the Arithmetic mean of 7, 8,5,7,3.

18. Define Wilcoxon sign test.

19. What are the principal steps involved in statistical test?

20. Define the functions of Statistics.

21. What are the desirable properties of a good measure of dispersion?

22. Define axiomatic approach to probability.

23. Define percentiles.

24. If $x \xrightarrow{d} N(10, 1)$, find $P(X \leq 10)$.

25. Explain the difference between parametric and non parametric tests.

26. Define conditional probability.

(8 × 2 = 16 Marks)

SECTION – C

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

27. Briefly explain various measures of dispersion.

28. Define binomial distribution and give its important features.

29. Define Karl Pearson's coefficient of correlation.

30. Explain the procedure of Kruskal Wallis test.

31: If 2 dice are thrown, What is the probability that the sum is greater than 8?

32. Define contingency table. Explain the difference between correlation and association.

33. Write a note on rank correlation coefficient.

34. Distinguish between absolute and relative measure of dispersion.

35. What are the precautions taken while preparing a questionnaire?

36. Explain positive and negative correlation with suitable examples.

37. Briefly explain the regression lines.

38. What is critical region?

(6 × 4 = 24 Marks)

SECTION – D

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

39. The following data is a random sample from of the normal distribution with mean 0 and variance 1: -0.465, 0.120, -0.238, -0.869, -1.016, 0.417, 0.056, 0.561.

    Conduct the sign test for testing $H_0 : \mu = -1$ against $H_1 : \mu > -1$.

40. Explain

    (a) Simple Hypothesis

    (b) Composite Hypothesis

    (c) Level of significance

    (d) p-value

    (e) ANOVA.

41. Find mean, median, mode for the following data

Class interval :	0-8	8-16	16-24	24-32	32-40	40-48
frequency :	8	7	16	24	15	7

42. Find the coefficient of correlation from the following data:

x :	12	20	15	22	18	24	20	12	15	22
y :	30	35	28	36	29	39	30	25	30	38

43. Draw the Ogives and hence find the median for the following data :

Marks :	0-10	10-20	20-30	30-40	40-50	50-60	60-70
Number of students :	4	8	11	15	12	6	3

44. Obtain the regression for the following data :

x :	68	64	75	56	64	80	75	40	55	64
y :	62	58	68	45	81	60	68	48	50	70

(2 × 15 = 30 Marks)