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Reg. No. : .....

Name : .....

First Semester B.Sc. Degree Examination, August 2021

First Degree Programme Under CBCSS

Statistics

Complementary Course for Physics

ST 1131.2 – DESCRIPTIVE STATISTICS

(2020 Admission Regular)

Time : 3 Hours Max. Marks : 80

(Statistical table and calculator are permitted).

SECTION – A

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

1. Let $X_1, X_2, \ldots X_n$ be 'n' observations with corresponding frequencies $f_1, f_2 \ldots f_n$ respectively. Then Arithmetic mean = ————————.
2. Probability of drawing an unit in each selection remains same in ———————— type of sampling.
3. Write the formula for calculating correlation coefficient.
4. Define skewness.
5. Write the normal equations of $y = ax^b$.
6. The angle between two regression lines when they coincide is ————————.
7. Find the mode of 12,13,12,14,5,8,12,11,13 and 15 is ————————.
8. Define coefficient of variation.

P.T.O.

9. What is less than Ogive?

10. The difference between upper and lower limit of a class is called _____.

(10 × 1 = 10 Marks)

SECTION – B

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

11. What is spearman's rank correlation coefficient?
12. Write the relationship between central moments and raw moments.
13. Define kurtosis and write the formula for finding kurtosis.
14. Describe Quartiles.
15. What is curve fitting?
16. What is the difference between correlation and regression?
17. Find mean deviation about mean 38,70,48,40,42,55,63,46,54,44.
18. Explain the procedure of fitting the curve $y = ae^{bx}$.
19. Find the median of

x:	5	15	20	25	30
f:	12	4	6	3	8

20. How will you construct a histogram?
21. Name different methods of collecting primary data.
22. What is the importance of tabulation?
23. Write the formula for relation between regression coefficient and correlation coefficient.
24. What are the disadvantages of secondary data?
25. What are the desirable properties of a good measure of central tendency?
26. Define harmonic mean and write its formula.

(8 × 2 = 16 Marks)

SECTION – C

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

27. Distinguish between central tendency and dispersion.
28. How do we identify spearman's rank correlation coefficient in the case of tied ranks?
29. Describe the method of fitting the curve $ax^2 + bx + c$.
30. Show that correlation coefficient is independent of change of origin and scale.
31. Explain :
    (a) mesokurtic curve
    (b) leptokurtic curve and
    (c) platykurtic curve.
32. Describe how do we draw a frequency curve an bar chart.
33. Explain coefficient of variation. Give its uses.
34. Differentiate subdivided bar diagram and multiple bar diagram.
35. Describe briefly about different parts of a table.
36. Plot a frequency curve for the following data :

Range	800-899	900-999	1000-1099
Number of particles	50	100	200
Range	1100-1199	1200-1299	1300-1399
Number of particles	150	40	10

37. Find the arithmetic mean for the data given below :

Class :	10-20	20-30	30-40	40-50	50-60	60-70	70-80
Frequency :	2	3	8	14	8	3	2

38. Find the coefficient of skewness for the following data :

Class interval	130-134	135-139	140-144	145-149	150-154	155-159	160-164
Frequency :	3	12	21	28	19	12	5

(6 × 4 = 24 Marks)

SECTION – D

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

39. Find the first four central moments and kurtosis to the following data :

X :	0	1	2	3	4	5	6	7
F :	1	8	28	56	70	56	28	8

40. Compute mode for the following data :

Class :	0-10	10-20	20-30	30-40	40-50	50-60	60-70
frequency :	4	16	40	100	40	6	4

41. Find the coefficient of variation from the following data :

X :	0-2	2-4	4-6	6-8	8-10	10-12
Y :	5	16	13	7	5	4

42. Find the median and mean deviation about median for the following data :

Age in years :	0-10	10-20	20-30	30-40	40-50	50-60
No. of members	6	7	15	16	4	2

43. Fit a regression equation for the following data :

x :	56	42	72	36	63	47	55	49	38	42	68	60
y :	147	125	160	118	149	158	150	145	115	140	152	155

44. Calculate the Karl Pearson's coefficient of correlation from the following data :

x :	1	2	3	4	5	6	7	8	9
y :	9	8	10	12	11	13	14	16	15

(2 × 15 = 30 Marks)
