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**N – 4039**

Reg. No. : .....

Name : .....

**First Semester B.Sc. Degree Examination, June 2022**

**First Degree Programme Under CBCSS**

**Statistics**

**Core Course I**

**ST 1141 : STATISTICAL METHODS – I**

**(2020 Admission Onwards)**

Time : 3 Hours

Max. Marks : 80

**SECTION – A**

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

1. What is the meaning of Statistics?
2. What are the limitations of Statistics?
3. Define a schedule.
4. What are cartograms?
5. What is tabulation?
6. What percentage of observations is between first and sixth decile?
7. Give the relation between range and S.D.
8. Name a positional average.

**P.T.O.**

9. Define raw moments of a distribution.
10. Kurtosis is adjudged around which measure of central tendency?

(10 × 1 = 10 Marks)

### SECTION – B

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

11. What are the misuses of Statistics?
12. Define primary data and secondary data.
13. What is a cumulative frequency table?
14. Draw a frequency polygon for the following data and hence find the mode :
 

Marks obtained :	<10	<20	<30	<40	<50
No. of students :	2	4	9	7	3
15. Distinguish between quantitative data and qualitative data.
16. Find the weighted A.M. of 2, 5, 9 and 11 with weights 8, 7, 3 and 2.
17. Calculate the G.M of 3, 6, 24 and 48.
18. If the variance of  $n$  consecutive natural numbers is 14, what is the value of  $n$ ?
19. What is the relation between mean, median and mode for a moderately skewed distribution?
20. What are the demerits of mode?
21. Give the formula for the  $i^{\text{th}}$  percentile.
22. Give the relationships between Q.D, M.D and S.D.
23. For a symmetric distribution, how can one determine the upper and lower quartile with the help of Q.D and the median?
24. What is coefficient of variation? What is the implication of a large value of it?

25. What is the purpose of measuring averages, measures of dispersion, skewness and Kurtosis?
26. What do you mean by skewness?

**(8 × 2 = 16 Marks)**

**SECTION – C**

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

27. What are the important methods of collecting a primary data?
28. What are the precautions to be taken in using a secondary data?
29. Define classification of data. What are the different types of classification?
30. What are the advantages and limitations of an average?
31. Find the H.M. of  $1, \frac{1}{2}, \frac{1}{3}$  and  $\frac{1}{4}$ . What are its uses?
32. If  $G_1$  is the G.M of  $n_1$  observations and  $G_2$  is the G.M of  $n_2$  observations then find the G.M of the pooled set of  $(n_1 + n_2)$  observations.
33. What are the requisites of a good measure of dispersion?
34. Differentiate between absolute and relative measures of dispersion.
35. Establish the relation between raw moments and central moments.
36. If the mean of a distribution is 15 and variance is 25, with the coefficient of skewness  $\beta_1 = 1$ , find the third raw moment.
37. Why Sheppard's correction is needed for the moments of grouped data. Give the Sheppard's correction for the first 4 central moments.
38. Discuss positive skewness of a distribution based on its characteristics.

**(6 × 4 = 24 Marks)**

## SECTION – D

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

39. (a) Discuss the important graphical representations of a data?  
 (b) The following data gives the age of a group of people. Draw the Histogram and hence find the median of the distribution.

Class interval :	0 – 10	10 – 20	20 – 30	30 – 40	40 – 50
Frequency :	8	20	36	24	12

40. (a) Find the missing values from the following information :

	Group I	Group II	Group III	Combined
Number	50	?	90	200
S.D.	6	7	?	7.746
Mean	113	?	115	116

- (b) Show that sum of deviations of observations from the mean is zero.

41. Find the mean and S.D from the following frequency distribution :

Heights in inches :	59 – 61	61 – 63	63 – 65	65 – 67	67 – 69
No. of students :	4	30	45	15	6

42. (a) Show that M.D is minimum when taken from the median.  
 (b) Calculate the mean deviation from the median of the following data.

X	10	11	12	13	14	Total
Frequency	3	12	18	12	3	48

43. (a) What are the important relative measures of dispersion?  
 (b) Find the Quartile deviation and the coefficient of Q.D from the data.

Wages :	10 – 15	15 – 20	20 – 25	25 – 30	30 – 35
No. of workers :	6	12	18	10	4

44. Compute the first four moments about mean (central moments) for the following data and compute the coefficients of skewness and kurtosis :

Classes :	10 – 12	12 – 14	14 – 16	16 – 18	18 – 20	20 – 22	22 – 24
Frequency :	1	3	7	20	12	4	3

(2 × 15 = 30 Marks)