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F – 1898

Reg. No. :

Name :

First Semester B.Sc. Degree Examination, November 2018
First Degree Programme Under CBCSS
Statistics
Core Course 1
ST 1141 : STATISTICAL METHODS – I
(2018 Admission)

Time : 3 Hours

Max. Marks : 80

SECTION – A

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

1. What is meant by tabulation ?
2. What do you mean by primary data ?
3. Name the graph that can be used to find Mode of a frequency distribution.
4. What is a line diagram ?
5. Find the geometric mean of 4 and 9.
6. State the empirical relation between Mean, Median and Mode.
7. Which measure of dispersion can be calculated in the case of open end class intervals ?
8. Define coefficient of variation.
9. Define the r^{th} central moment.
10. What is meant by kurtosis ?

(10×1=10 Marks)

P.T.O.



SECTION – B

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

11. Distinguish between grouped and ungrouped frequency distributions.
12. Which are the important sources of secondary data ?
13. Distinguish between Diagrams and Graphs.
14. Explain histogram.
15. Obtain the arithmetic mean of first 'n' natural numbers.
16. What do you mean by partition values ? Explain.
17. If x_1 and x_2 are two observations, then show that $A.H. = G^2$, where A,H and G are the Arithmetic Mean, Harmonic Mean and Geometric Mean of x_1 and x_2 respectively.
18. Define Range. Give a relative measure of dispersion based on range.
19. In a data if each observation is multiplied by 5 and 2 is added, how do they affect
 - i) mean
 - ii) variance and
 - iii) mean deviation
20. Prove that for any discrete distribution standard deviation is not less than mean Deviation from mean.
21. The first two moments of a distribution about the value 5 of a variable are 2 and 20. Find the mean and variance.
22. What are the different methods to measure kurtosis ? **(8x2=16 Marks)**

SECTION – C

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

23. Explain the methods of collecting primary data.
24. Briefly explain multiple bar diagram and deviation bar diagram.



25. Draw the ogives of the following distribution and find the median :

Class	0-20	20-40	40-60	60-80
Frequency	7	16	13	4

26. You can take a trip which entails travelling 900 km by train at an average speed of 60 km/hour, 3000 km by boat at an average speed of 25 km/hour, 400 km by plane at 350 km/hour and finally 15 km by taxi at 25 km/hour. What is your average speed for the entire distance ?

27. The mean marks obtained by 300 students in the subject of Statistics is 45. The mean of the top 100 of them was found to be 70 and the mean of the last 100 was known to be 20. What is the mean of the remaining 100 students ?

28. Find the standard deviation of $a, a + d, a + 2d, a + 3d, \dots, a + 2nd$.

29. The mean of 5 items is 4 and the variance is 5.2. If 3 of the 5 items are 1, 2 and 6, find the other two.

30. The first four moments of a distribution about the value 4 of a variable are $-1.5, 17, -30$ and 108 . Find the moments about mean, β_1 and β_2 .

31. Show that for a discrete distribution $\beta_2 > 1$. (6×4=24 Marks)

SECTION – D

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

32. Explain the concept and significance of Pie diagram. Draw a pie diagram for the following data :

Blood Group	No. of students
A	35
B	43
AB	16
O	38

33. From the following table, find the mean deviation about median.

Weight in kg.	56-58	58-60	60-62	62-64	64-69	69-75	75-80
No. of people	5	18	42	27	14	8	3



34. Two models of radio were subjected to a durability test and the results are as follows :

Life in years	Number of sets	
	Model A	Model B
0-2	5	2
2-4	16	7
4-6	13	12
6-8	7	19
8-10	5	9
10-12	4	1

Which model shows more uniformity ?

35. Find the coefficient of kurtosis of the data given below :

Class	0-10	10-20	20-30	30-40
Frequency	1	3	4	2

(2×15=30 Marks)
