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Reg. No. : [redacted]

Name : [redacted]

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

30.11.2018 Friday

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 ? **(8×2=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, . . . , 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	Number of sets 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)

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23. $\frac{x_1+x_2+\cdots+x_{100}}{100}=70$

$\frac{x_{201}+x_{202}+\cdots x_{300}}{100}=20$

$\frac{x_1+\cdots+x_{300}}{300}=45$

$\therefore \frac{(x_1+x_2+\cdots x_{100})}{100}+\frac{(x_{101}+\cdots x_{200})}{100}+\frac{(x_{201}+\cdots x_{300})}{100}=45$

$70+?+20=45\times 3$, $\therefore ?=\frac{450}{100}=45$

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Reg. No. [redacted]

Name : [redacted]

First Semester B.Sc. Degree Examination, November 2019

First Degree Programme Under CBCSS

Statistics

Core Course I

ST 1141 : STATISTICAL METHODS – I

(2018 Admission onwards)

Time : 3 Hours Max. Marks : 80

SECTION – A

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

1. Data taken from Agricultural Statistics in India will be considered as ———— data.
2. Define Cartograms.
3. Points of intersection of the two ogives corresponds to the ————————.
4. Data can be classified according to colour. They are measured on ———— ——— sale.
5. For a frequency distribution define r^{th} moment about A.
6. Classification based on time is called ————————.
7. Define G.M.
8. Define Coefficient of Variation.
9. State true or false : Variance is independent of change of origin and scale.
10. Find arithmetic mean of the numbers 2,4,6,7,9,10,17.

(10 × 1 = 10 Marks)

P.T.O.

SECTION – B

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

11. Explain the merits of Sampling over Census.

12. Define Kurtosis and suggest a measure for it.

13. What are the functions of Statistics?

14. 10 is the mean of a set of 7 observations and 5 is the mean of a set of 3 observations. Find the mean of the combined set.

15. Define pictogram. Explain with the help of an example.

16. Prove that for any discrete distribution, standard deviation is not less than mean deviation from mean.

17. Define histogram.

18. Give any four sources of secondary data.

19. Explain Sheppard's correction for moments.

20. List out any four Merits of Median.

21. Represent using appropriate diagram.

Student Name	A	B	C	D	E	F
Marks	72	66	35	76	29	50

22. In a moderately asymmetrical distribution Mean is 24.6 and median is 25.1 find the value of mode.

(8 × 2 = 16 Marks)

SECTION – C

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

23. Calculate Mean deviation about Mean: 8,24,12,16,20,10.

24. What are the limitations of Statistics?

25. Explain ratio scale and nominal scale.

26. Formulate frequency table for the following data.

5, 15, 51, 12, 18,2,3,7, 19, 59, 47, 63, 82, 33, 31, 32, 67, 52, 45, 64.

27. Compute median.

Class	0-6	7-13	14-20	21-27	28-34	35-41
f	8	17	28	15	9	3

28. Compare primary and secondary data.

29. Explain the construction of a Pie diagram.

30. The first 4 raw moments of a distribution are 1, 4, 10 and 46. Find the first four central moments.

31. Draw a subdivided bar diagram for the following data.

Year	Arts	Science	Law
2012	1000	1500	750
2013	1300	1400	500
2014	1650	1230	738

(6 × 4 = 24 Marks)

SECTION – D

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

32. Find standard deviation and coefficient of variation for the following data.

Age:	0-6	6-12	12-18	18-24	24-30
No. of Patients	5	7	18	25	17

33. (a) Explain different types of classifications with examples.

(b) Define tabulation. Explain different types of tables.

34. Find Q1, Q3, D4, P20, and P99 for the following data.

Mark	25	35	40	50	52	53	67	75	80
No. of students	3	29	32	41	49	54	38	29	27

35. Explain frequency polygon, and less than ogive. Construct them with the help of an example.

(2 × 15 = 30 Marks)
