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Reg. No. : .....

Name : .....

Second Semester B.Sc. Degree Examination, May 2019

First Degree Programme Under CBCSS

Statistics

Core Course – 2

ST 1241 : STATISTICAL METHODS – II

(2018 Admission)

Time : 3 Hours Max. Marks : 80

SECTION – A

Answer **all** questions. Each question carries 1 marks. :

1. Write Spearman's rank correlation formula for repeated ranks.
2. What is the application of scatter diagram?
3. Define coefficient of determination.
4. Write the probable error of correlation coefficient.
5. What is meant by link analysis?
6. List any two visualization techniques used in data mining.
7. Write the function to find the inverse of a matrix using excel.

P.T.O.

8. Which is the suitable function in excel to find the quartiles of a data?

9. What is the usage of == operator in R?

10. Write the command to generate observation from Normal distribution using R.

(10 × 1 = 10 Marks)

SECTION – B

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

11. Define correlation ratio.

12. Karl Pearson's coefficient of correlation between two variables X and Y is 0.78 and their covariance is 10. If the variance of X is 25, find the standard deviation of Y.

13. Show that if one of the regression coefficient is greater than unity, the other must be less than 1.

14. Distinguish between partial correlation and multiple correlation.

15. Write the normal equation for fitting a parabola.

16. What is decision tree?

17. What is the application of discriminant analysis?

18. Define data warehousing.

19. How to compute the correlation coefficient for two variables in excel?

20. How to draw Bar diagram in excel?

21. What are the logical operators in R?

22. Write down the steps to compute mean, median, variance and standard deviation using R.

(8 × 2 = 16 Marks)

SECTION – C

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

23. Prove that the correlation coefficient lies between –1 and 1.

24. For the regression lines $4x - 5y - 33$ and $20x - 9y = 107$ find :

    (a) mean values of x and y

    (b) the coefficient of correlation between x and y.

25. Fit a curve of the form $y = ax^b$ to the given data

x	1	2	3	4	5
y	87	97	113	129	202

26. Explain the least square method for fitting the curve $y = ab^x$.

27. Describe the applications of data mining.

28. Explain online analytical processing (OLAP).

29. Explain the various data entry methods in R.

30. Write down the important statistical functions available in excel.

31. Explain various control statements in R.

(6 × 4 = 24 Marks)

SECTION – D

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

32. (a) Calculate Pearson's coefficient of correlation from the following data.

X:	10	15	12	17	13	16	24
Y:	30	42	45	46	33	36	40

(b) The ranks of 10 students secured for mathematics and statistics are given. Calculate rank correlation coefficient for the data.

Mathematics	1	2	3	4	5	6	7	8	9	10
Statistics	1	5	3	9	7	2	8	10	4	6

33. Height and Weight of 8 women swimmers are given. Develop a scatter diagram for these data with height as the independent variable. Also fit a linear regression for the data.

Height (in Inches)	68	64	62	65	66	63	65	67
Weight (in Kg)	60	50	47	52	58	50	53	61

34. Explain the role of classification in predictive analysis.

35. Explain :

(a) Neural networks

(b) Logistic regression.

(2 × 15 = 30 Marks)