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Question Paper Code: R3D02

B.E./B.Tech. DEGREE EXAMINATION, NOV 2024

Third Semester

Computer Science and Business Systems

R21UCB302 – COMPUTATIONAL STATISTICS

(Regulations R2021)

Duration: Three hours

Maximum: 100 Marks

PART A - (10 x 2 = 20 Marks)

1. Write the formula for multivariate regression. CO1-U
2. Why do we use multivariable regression models? CO2-App
3. Discuss Autocorrelation. CO1-U
4. Explain regression line with neat diagram. CO1-U
5. List the difference between regression analysis and discriminant analysis. CO1-U
6. Write the advantages of Linear Discriminant Analysis. CO1-U
7. List the difference between PCA and factor analysis. CO1-U
8. Explain the application of factor analysis. CO1-U
9. Write the objective function of the K-means algorithm. CO1-U
10. Define requirements of clustering. CO1-U

PART – B (5 x 16= 80 Marks)

11. (a) Three Different machines are used for a production on the basis of the outputs. Test whether the machines are equally effective. Using ANOVA one way classification CO2-App (16)

Machine I	Machine II	Machine III
10	9	20
15	7	16
11	5	10
10	6	16

Or

- (b) Calculate the Karl Pearson correlation coefficient(r) CO2-App (16)

X	1	3	5	7	9
Y	2	4	6	8	10

12. (a) Explain in detail about any four correlation types with suitable example. CO1-U (16)

Or

- (b) Explain in detail about Correlation and its Types. CO1-U (16)

13. (a) Discuss the applications of LDA? Explain briefly. CO1-U (16)

Or

- (b) Explain in detail about algorithms of linear discriminant analysis. CO1-U (16)

14. (a) Explain the Algorithms for conducting Principal component analysis CO1-U (16)

Or

- (b) Discuss about how many steps involved in factor analysis model CO1-U (16)

15. (a) Consider following 8 points (x, y) representing into 3 clusters. CO2-App (16)
 P1(2,10),P2(2,5),P3(8,6),P4(5,8),P5(7,5),P6(6,4),P7(1,2),P8(4,9)
 Using Partitioning Clustering methods.

Or

- (b) To Solve Divisive Hierarchical clustering approach CO2-App (16)

	X	Y
A	2	5
B	6	5
C	2	4
D	2	2
E	5	4

