

Roll.No.

20PBSCT3007

SHRIMATHI DEVKUNVAR NANALAL BHATT VAISHNAV COLLEGE FOR WOMEN  
(AUTONOMOUS)

(Affiliated to the University of Madras and Re-accredited with 'A+' Grade by NAAC)  
Chromepet, Chennai - 600 044.

M.Sc.Biostatistics - END SEMESTER EXAMINATIONS - NOVEMBER 2025  
SEMESTER -III

**20PBSCT3007 - Applied Multivariate Analysis**

Total Duration : 2 Hrs. 30 Mins.

Total Marks : 60

### Section B

Answer any **SIX** questions ( $6 \times 5 = 30$  Marks)

1. State the hypothesis and the underlying assumptions of Hotelling's  $T^2$  statistic for one sample problem
2. Describe the proportion of variation explained by a component in Principal Component Analysis.
3. Classify the properties of Canonical Correlation Analysis.
4. Describe the procedure to determine the error rate of misclassification.
5. Give the uses of Correspondence Analysis.
6. Classify the distance measures used in clustering the objects.
7. Explain the assumptions of Fisher's linear discriminant function.
8. Examine the characteristics of factor scores.

### Section C

I - Answer any **TWO** questions ( $2 \times 10 = 20$  Marks)

9. Show that the components are uncorrelated and the variance is equal to the characteristic root of the covariance matrix.
10. Prepare the procedure for testing the significance of canonical correlation and interpretation of canonical variables.
11. Determine the decision rule in classifying one of the two Normal populations having different mean vectors and same dispersion matrices.
12. Examine k-means Non-hierarchical clustering method using suitable example.

II - Compulsory question ( $1 \times 10 = 10$  Marks)

13. Examine the procedure of one way Multivariate Analysis of Variance for testing the equality of several mean vectors..

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