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V – 5849

Reg. No. :

Name :

Second Semester M.A. Degree Examination, August 2025

Behavioural Economics and Data Science

BEDS 523 : FOUNDATIONS OF DATA SCIENCE

(2020 Admission Onwards)

Time : 3 Hours

Max. Marks : 75

PART – A

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

1. Principal Component Analysis.
2. Data Integration.
3. Logistic Regression.
4. Clustering Tendency.
5. Decision Tree.
6. Data cleaning.
7. Naive Bayes Classifier.
8. Scatter Plot.
9. Machine Learning.
10. Random Forest.

(10 × 1 = 10 Marks)

P.T.O.



PART – B

Answer any **seven** questions. Each question carries **5** marks.

11. Explain the concept of statistical hypothesis testing with an example.
12. Describe how t -tests are used to compare two samples.
13. Write a brief note on Lloyd's algorithm used in k-means clustering.
14. How is data discretization different from data transformation?
15. Describe the philosophy and steps of Exploratory Data Analysis.
16. Discuss the use of ensemble methods in improving model accuracy.
17. Explain how filters and wrappers differ in feature selection.
18. Describe the structure and significance of a confusion matrix.
19. Write a note on the role of distance metrics in clustering algorithms.
20. Explain the use and construction of a dashboard in data visualization.

(7 × 5 = 35 Marks)

PART – C

Answer any **three** questions. Each question carries **10** marks.

21. Describe different machine learning algorithms used in supervised learning and their applications.
22. Explain how SVD is used for matrix decomposition and dimensionality reduction.
23. Discuss the components and applications of data reduction techniques.
24. Describe DBSCAN algorithm in detail. What are its advantages over other clustering methods?
25. Explain different types of charts and graphs used in data visualization. Illustrate with examples.

(3 × 10 = 30 Marks)