

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.

B.C.A. - END SEMESTER EXAMINATIONS - APRIL 2025

SEMESTER - III

**23UACT3005 - Fundamentals of Machine Learning**

Total Duration : 2 Hrs.30 Mins.

Total Marks : 60

### **Section B**

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

1. What is Machine Learning, and how is it different from traditional programming?
2. How are Training Data and Test Data used in Machine Learning?
3. What are the key components of an ML Toolbox, and why are they important?
4. Explain the process of feature selection and data scrubbing in Machine Learning.
5. What is the role of Decision Tree Regression in Machine Learning?
6. How does Random Forest Regression improve the accuracy of regression models?
7. What is Boosting, and how does it enhance the performance of ML models?
8. How do hyperparameters impact the performance of an ML algorithm?

### **Section C**

Answer any **THREE** questions ( $3 \times 10 = 30$  Marks)

9. Explain the three main categories of Machine Learning: Supervised, Unsupervised, and Reinforcement Learning.
10. Discuss in detail about Cross Validation, and how does it improve model performance.
11. Explain Linear Regression and Logistic Regression with real-world examples.
12. Describe the K-Nearest Neighbors (KNN) and K-Means Clustering algorithms.
13. What are the key steps in building a Machine Learning model in Python?

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