



St. MARTIN'S ENGINEERING COLLEGE

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DEPARTMENT OF ARTIFICIAL INTELLIGENCE AND DATA SCIENCE (AI & DS)

ASSIGNMENT-II

Course Name : **Machine Learning**

Course Code : **CS602PC**

Batch : **I**

Question Number	List of Questions	Bloom's Taxonomy Levels
1	Illustrate with an example how bagging improves classification performance by combining multiple weak classifiers.	BTL-3
2	Explain the difference between Principal Component Analysis (PCA) and Linear Discriminant Analysis (LDA) with respect to their dimensionality reduction objectives.	BTL-2
3	Apply the concept of Least Squares Optimization to fit a linear regression model. Derive the normal equation used for calculating optimal parameters.	BTL-3
4	Apply the concept of Markov Chains to explain how an agent can learn to make decisions using Monte Carlo sampling. Illustrate your answer with a suitable example.	BTL-3
5	Analyze how MCMC methods can be utilized for inference in graphical models. What are the challenges associated with sampling from high-dimensional spaces?	BTL-4

Actual Date of Submission: **30.04.2025**

Last Date of Submission: **07.05.2025**