THAKUR COLLEGE OF
ENGINEERING & TECHNOLOGY
Autonomous College Affiliated to University of Mumbai
Approved by All India Council for Technical Education(AICTE) and Government of Maharashtra(GoM)
Conferred Autonomous Status by University Grants Commission (UGC) for 10 years w.e.f. A.Y 2019-20
Amongst Top 200 Colleges in the Country, Ranked 101st in NIRF India Ranking 2019 in Engineering College category
Estd. in 2001

END SEMESTER EXAMINATION, DECEMBER 2022
T.T. SEMESTER V (CBCGS-HME 2020)

Branch:	Artificial Intelligence & Data Science	**Q.P. Code:**	**35110C0042**
Subject:	Machine Learning	**Duration:**	**2 hours**
Subject Code:	PCC-AIDS503	**Max. Marks:**	**60**

Instructions:
1. **All sections are compulsory**
2. **Figures to the right indicate full marks.**
3. **Assume suitable data if necessary and state the assumptions clearly.**

Section-I	**Short Answer Questions (Answer any 05 questions out of 06) (Fundamental, Core Types)**				**(10 Marks)**
Q. No.	Answer the following.	**Marks**	**CO**	**RBT Level**	**PI**
1	When Will You Use Classification over Regression?	2	6	U	1.3.1
2	Explain How a System Can Play a Game of Chess Using Reinforcement Learning.	2	5	U	1.3.1
3	What is Bias and Variance in a Machine Learning Model?	2	1	R	1.1.1
4	Define Precision and Recall.	2	3	R	1.1.1
5	What is Pruning in Decision Trees, and How Is It Done?	2	4	U	1.3.1
6	Write the formula to form evaluation metric of MSE, RMSE, MAE, R2, adjusted R2	2	2	U	1.3.1
Section-II	**Descriptive Answer Questions(Answer any 04 out of 06) (Descriptive, Comprehension Types)**				**(20 Marks)**
1	What is 'training Set' and 'test Set' in a Machine Learning Model? How Much Data Will You Allocate for Your Training, Validation, and Test Sets?	5	1	U	1.3.1
2	Differentiate between Boosting and Bagging.	5	4	U	1.3.1
3	What is KNN classification? Why is it called lazy learning?	5	3	R	1.1.1
4	Explain different types of regularization in ML using appropriate Examples.	5	2	A	2.1.3
5	Explain Ensemble Learning with an example.	5	4	A	2.1.3
6	Explain Working of Random Forest Algorithm.	5	5	U	1.3.1
Section-III	**Long Answer Question (Answer any 03 out of 05) (Application, Analytical, Evaluation, Design Type)**				**(30 Marks)**
1	Define Support Vector Machine. Explain how margin is computed and optimal hyper-plane is decided.	10	2	A	2.1.3
2	How many types of clustering are available in ML? Explain each type with examples.	10	5	A	2.1.3
3	Find the equation of linear regression line using following data points: (0,72),(5,66), (10,70), (15,64), (20,60)	10		AN	3.1.1
4	Explain in detail: Geometric intuition of Adaptive boosting.	10	4	A	2.1.3

PT.O.