R22 Regulation *Subject code: 4E6EC*

TKR COLLEGE OF ENGINEERING AND TECHNOLOGY

(Autonomous, Accredited by NAAC with 'A+' Grade)

B.Tech VI Semester Regular Examinations, May 2025

MACHINE LEARNING

(CSE)

Maximum Marks: 60 Date: 20.06.2025 Duration: 3 hours

Note: **1.This question paper contains two parts A and B.**
2. Part A is compulsory which carries 10 marks. Answer all questions in Part A.
3. Part B consists of 5 Units. Answer any one full question from each unit.
4. Each question carries 10 marks and may have a, b, c, d as sub questions.

Part-A

All the following questions carry equal marks (10X1M=10 Marks)		Marks	CO	BloomTx
1.a)	Compare Supervised Learning and unsupervised learning.	1M	1	L2
b)	What is concept learning.	1M	1	L1
c)	Differentiate sequential and batch training.	1M	2	L2
d)	Draw the architecture of a MLP.	1M	2	L2
e)	Define Classification and Regression Tree.	1M	3	L1
f)	What is Ensemble Learning.	1M	3	L1
g)	Define Factor Analysis.	1M	4	L1
h)	List the applications of Genetic Algorithms.	1M	4	L1
i)	List the importance of Monte Carlo method	1M	5	L1
j)	List the applications of Reinforcement Learning	1M	5	L1

Part-B

Answer All the following questions. (5X10M=50Marks)		Marks	CO	BloomTx
2	a) Discuss the Issues in Machine Learning. b) Explain FIND-S Algorithm with an example.	5M 5M	1	L2
	OR			
3	Write Candidate Elimination Algorithm and apply it to the following enjoy sport dataset.	10M	1	L2
4	a) Draw the multi-layer perceptron architecture, explain each layer. b) Discuss various activation functions used in neural networks.	5M 5M	2	L2
	OR			
5	a) Explain classification problem with Support Vector Machine. b) Discuss Curse of Dimensionality in machine learning.	5M 5M	2	L2

Example	*Sky*	*AirTemp*	*Humidity*	*Wind*	*Water*	*Forecast*	*EnjoySport*
1	Sunny	Warm	Normal	Strong	Warm	Same	Yes
2	Sunny	Warm	High	Strong	Warm	Same	Yes
3	Rainy	Cold	High	Strong	Warm	Change	No
4	Sunny	Warm	High	Strong	Cool	Change	Yes

6	a) Explain decision tree with an example. b) What is ada-boost give an example.	5M 5M	3	L2
	OR			
7	Discuss K means Algorithms algorithm with an example.	10M	3	L2
8	a) Explain Principal Component Analysis algorithm. b) Explain Least Squares Optimization.	5M 5M	4	L2
	OR			
9	a) Write the basic Genetic algorithm? b) List the Operators of Genetic Algorithms explain any two with an example.	5M 5M	4	L3
10	a) Discuss Reinforcement Learning with an example. b) Discuss Kalman filter algorithm.	5M 5M	5	L2
	OR			
11	Explain Bayesian Network with an example.	10M	5	L2