R20 Regulation *Subject code:3E6EF*

TKR COLLEGE OF ENGINEERING AND TECHNOLOGY

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

B.Tech VI Semester Supplementary Examinations, May 2025

MACHINE LEARNING

(CSE)

Maximum Marks: 70 Date: 23.06.2025 Duration: 3 hours

Note: **1.This question paper contains two parts A and B.**
2. Part A is compulsory which carries 20 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 (10X2M=20 Marks)		Marks	CO	BTL
1	What are the important objectives of machine learning?	2M	1	L1
2	What are the basic design issues and approaches to machine learning?	2M	1	L1
3	What is the representational power of perceptrons?	2M	2	L1
4	What is Rule Post Pruning	2M	2	L1
5	State Bayes theorem.	2M	3	L1
6	Under what conditions is successful learning possible?	2M	3	L1
7	Define Prior Probability	2M	4	L1
8	What is conditional Independence?	2M	4	L1
9	What is Reinforcement Learning?	2M	5	L1
10	What are the limitations of explanation based learning?	2M	5	L1

Part-B

Answer All the following questions. (5X10M=50Marks)		Marks	CO	BTL
11	Write candidate elimination algorithm. Apply the algorithm to obtain the final version spacefor the training example.	10M	1	L2

Sl. No.	Sky	Air temp	Humidity	Wind	Water	Forecast	Enjoy sport
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

OR

12	What do you mean by a well –posed learning problem? Explain the important featuresthat are required to well –define a learning problem.	10M	1	L2
13	Discuss how a multi layer network learns using a gradient descent algorithm.	10M	2	L2
	OR			

14	a) Distinguish between inductive bias and estimation bias. b) Explain the methods for comparing the accuracy of two hypotheses.	4M 6M	2	L2
15	Explain Naïve Bayes classifier with example.	10M	3	L2
	OR			
16	Ex[plain K-nearest neighbour with an example.	10M	3	L2
17	Explain sequential covering algorithm and learning rule.	10M	4	L2
	OR			
18	Explain remarks on explanation based learning.	10M	4	L2
19	Explain reinforce learning task and q learning.	10M	5	L2
	OR			
20	Discuss the hypothesis space search in inductive- analytical approaches to learning	10M	5	L2