R20 Regulation *Subject code: 3P5GD*

TKR COLLEGE OF ENGINEERING AND TECHNOLOGY

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

B.Tech V Semester Supplementary Examinations, November 2025

INTRODUCTION TO MACHINE LEARNING

(CSE(AI&ML))

Maximum Marks: 70 Date: 10.11.2025 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	List the important objectives of machine learning?	2M	1	L1
2	What are the basic design issues to machine learning?	2M	1	L1
3	Define Bias.	2M	2	L1
4	What is Information Gain?	2M	2	L1
5	What is posterior hypothesis?	2M	3	L1
6	What is Gibbs Algorithm?	2M	3	L1
7	List out any two remarks on explanation-based learning.	2M	4	L1
8	List out the literals in first order logic.	2M	4	L1
9	What is Reinforcement Learning?	2M	5	L1
10	What is analytical learning?	2M	5	L1

Part-B

Answer All the following questions. (5X10M=50Marks)		Marks	CO	BTL
11	a) Write the perspectives and issues in machine learning. b) Explain design learning system in machine learning.	5M 5M	1	L2
	OR			
12	Apply Candidate Elimination Algorithm for the above given Training set.	10M	1	L2
13	Explain the issues in decision tree learning and give a decision trees to represent the following Boolean functions. 1. AV[BΛC] 2. [AΛB]V [CΛD] 3. AΛB 4. [AVB] Λ[CVD]	10M	2	L2

Example	Size	Color	Shape	Class/Label
1	Big	Red	Circle	No
2	Small	Red	Triangle	No
3	Small	Red	Circle	Yes
4	Big	Blue	Circle	No
5	Small	Blue	Circle	Yes

	OR			
14	a) Discuss the decision learning algorithm. b) Discuss the use of decision tree for classification purpose with an example.	5M 5M	2	L2
15	Discuss the relationship between Bayes theorem and the problem of concept learning?	10M	3	L2
	OR			
16	Explain Naïve Bayes Classifier with an Example.	10M	3	L2
17	Discuss K-nearest neighbor learning with example.	10M	4	L2
	OR			
18	a) Discuss sequential covering algorithm with an example. b) Explain in detail about FOIL.	5M 5M	4	L2
19	a) Write an algorithm for learning Q. b) Explain an algorithm for regression a set of literals through a single horn clause.	5M 5M	5	L2
	OR			
20	a) Explain Analytical Learning with an example. b) Discuss about Reinforcement Learning task.	5M 5M	5	L2