R20 Regulation *Subject code: 3P5GD*

TKR COLLEGE OF ENGINEERING AND TECHNOLOGY

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

B.Tech V Semester Supplementary Examinations, April 2026

INTRODUCTION TO MACHINE LEARNING

(CSE(AI&ML))

Maximum Marks: 70 Date: 22.04.2026 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 out the basic design issues to machine learning.	2M	1	L1
2	What is version space	2M	1	L1
3	What is the representational power of perceptrons?	2M	2	L1
4	How to compute expected value and variance of a random variable?	2M	2	L1
5	State Bayes theorem.	2M	3	L1
6	How to use entropy as evaluation function?	2M	3	L1
7	What is domain theory?	2M	4	L1
8	What is analytical learning?	2M	4	L1
9	What is the essential difference between analytical and inductive learning methods?	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	Illustrate the impact of over fitting in a typical application of decision tree learning.	10M	1	L2
	OR			
12	a) Explain a concept learning task with Enjoy Spot Example. b) Explain the features of machine learning.	5M 5M	1	L2
13	Draw the perceptron network with the notation. Derive an equation of gradient descent rule to minimize the error.	10M	2	L2
	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	Explain the features of Bayesian learning methods.	10M	3	L2
	OR			

16	Explain Naïve Bayes Classifier with an Example.	10M	3	L2
17	Discuss the method of comparing two algorithms. Justify with paired to tests method.	10M	4	L2
	OR			
18	Explain about PROLOG-EBG with an example.	10M	4	L2
19	a) Explain the Q Learning Algorithm. b) Explain an algorithm for regression a set of literals through a single horn clause	5M 5M	5	L2
	OR			
20	a) Explain about approaches of Inductive – Analytical learning. b) Discuss about Reinforcement Learning task.	5M 5M	5	L2