



R20 Regulation

Subject code:3P5GD

TKR COLLEGE OF ENGINEERING AND TECHNOLOGY

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

B.Tech V Semester Supplementary Examinations, May 2025

INTRODUCTION TO MACHINE LEARNING

CSE(AI&ML)

Maximum Marks: 70

Date: 24.06.2025

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	List out basic design issues and approaches to machine learning.	2M	1	L1
3	Define Inductive Bias.	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	Define FOIL?	2M	4	L1
8	Define rules of learning?	2M	4	L1
9	Write an algorithm of Q learning.	2M	5	L1
10	What is Reinforcement learning?	2M	5	L1

Part-B

Answer All the following questions. (5X10M=50Marks)		Marks	CO	BTL
11	a) Contrast the hypothesis space search in ID3 and candidate elimination algorithm.	5M	1	L2
	b) Illustrate the impact of over fitting and under fitting in a typical application of decision tree learning.	5M		
OR				
12	a) Explain the features of machine learning	5M	1	L2
	b) Explain a concept learning task with Enjoy Spot example.	5M		
13	a) Discuss Entropy in ID3 algorithm with an example.	5M	2	L2
	b) Write the Basics of decision tree learning algorithm?	5M		
OR				
14	a) Write an algorithm for back propagation algorithm which uses stochastic gradient descent method.	5M	2	L2
	b) Explain information Gain.	5M		
15	a) Explain about Maximum likelihood hypotheses for predicting probabilities.	5M	3	L2
	b) Explain about Naïve Bayesian classifier.	5M		

	OR			
16	a) Write Remarks on Lazy and Eager learning? b) Discuss sample complexity for finite hypothesis spaces.	5M 5M	3	L2
17	a) Explain about first order rules: FOIL. b) Explain Sequential Covering Algorithm.	5M 5M	4	L2
	OR			
18	a) Explain based learning. b) Explain Prolog EBG.	5M 5M	4	L2
19	a) Explain inductive analytical approaches to learning. b) Explain in detail about Q Learning.	5M 5M	5	L2
	OR			
20	a) Explain Reinforcement Learning task. b) Explain how to learn Analytical approaches.	5M 5M	5	L2