



R20 Regulation

Subject code: 3E6EF

TKR COLLEGE OF ENGINEERING AND TECHNOLOGY

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

B.Tech VI Semester Supplementary Examinations, November 2025

MACHINE LEARNING

(CSE)

Maximum Marks: 70

Date: 13.11.2025

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	Given that the attribute A has three possible values, and that B, C, D, E, and F each have two possible values, the instance space X contains exactly how many distinct instances.	2M	1	L1
2	State version space representation theorem.	2M	1	L1
3	What is the representational power of perceptron's?	2M	2	L1
4	Define decision tree.	2M	2	L1
5	What is Artificial Neural Network?	2M	3	L1
6	Under what conditions is successful learning possible?	2M	3	L1
7	Define Prior Probability.	2M	4	L1
8	What factors contribute to the popularity of genetic algorithm?	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	What do you mean by a well –posed learning problem? Explain the important features that are required to well –define a learning problem.	10M	1	L2
OR				
12	a) Contrast the hypothesis space search in ID3 and candidate elimination algorithm.	5M	1	L2
	b) Illustrate the impact of overfitting in a typical application of decision tree learning.	5M		
13	What is a decision tree & discuss the use of decision tree for classification purpose with an example.	10M	2	L2
OR				
14	a) Discuss about inductive bias in decision tree learning.	5M	2	L2
	b) Explain the methods for comparing the accuracy of two hypotheses.	5M		
15	a) Explain the features of Bayesian learning methods.	5M	3	L2
	b) Discuss the relationship between the maximum likelihood hypothesis and the least squared error hypothesis.	5M		

	OR			
16	Explain Naïve Bayes classifier with an example.	10M	3	L2
17	Discuss about sequential covering algorithms with an example.	10M	4	L2
	OR			
18	Contrast Analytical learning and explanation based learning.	10M	4	L2
19	Highlight Q learning with an algorithm and example.	10M	5	L2
	OR			
20	Discuss the hypothesis space search in inductive- analytical approaches to learning.	10M	5	L2