R20 Regulation *Subject code: 3E8FC*

TKR COLLEGE OF ENGINEERING AND TECHNOLOGY

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

B.Tech VIII Semester Supplementary Examinations, May 2026

MACHINE LEARNING

(IT)

Maximum Marks: 70 Date: 06.05.2026 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 which carries 10M.
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	Bloom Tx
1	Define well-posed learning problem with an example.	2M	1	L1
2	What is inductive bias in concept learning?	2M	1	L1
3	What is meant by Occam razor?	2M	2	L1
4	Define the term Artificial Neural Network?	2M	2	L1
5	State Bayes Theorem.	2M	3	L1
6	List any two importance of PAC.	2M	3	L1
7	State the concept of First Order Rules.	2M	4	L1
8	What are horn clauses?	2M	4	L1
9	Define Inductive Approach.	2M	5	L1
10	List any two advantages of combining inductive and analytical learning.	2M	5	L1

Part-B

Answer All the following questions. (5X10M=50Marks)		Marks	CO	Bloom Tx
11	a) Describe the concept learning task and how it is approached through Find-S algorithm. b) Discuss version spaces and the Candidate Elimination algorithm.	5M 5M	1	L2
	OR			
12	a) Which disciplines have their influence on machine learning? Explain with examples. b) Explain General-to-specific ordering of hypotheses.	5M 5M	1	L2
13	a) How do you find the maximally specific hypothesis? Give example. b) Investigate advanced decision tree learning algorithms with an example	5M 5M	2	L2
	OR			
14	Describe the backpropagation algorithm and discuss its use in multilayer networks.	10M	2	L2
15	a) Explain Bayes Optimal Classifier with an example. b) Describe the k-Nearest Neighbour learning approach.	5M 5M	3	L2

	OR			
16	a) Describe Gibbs sampling algorithm. b) Illustrate Maximum likelihood hypothesis in detail.	5M 5M	3	L2
17	a) What is conditional Independence? b) Explain supervised and unsupervised learning. List the differences between them.	5M 5M	4	L2
	OR			
18	a) Define first order learning rules. b) Discuss Inductive and Analytical learning problems.	5M 5M	4	L2
19	a) Write KBANN algorithm with an example dataset. b) Write various Inductive-Analytical approaches to learning.	5M 5M	5	L2
	OR			
20	Design an experiment combining inductive and analytical learning methods for classification.	10M	5	L2