R20 Regulation *Subject code: 3E6EF*

TKR COLLEGE OF ENGINEERING AND TECHNOLOGY

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

B.Tech VI Semester Supplementary Examinations, April 2026

MACHINE LEARNING

(CSE)

Maximum Marks: 70 Date: 21.04.2026 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	What are the important objectives of machine learning?	2M	1	L1
2	What are the basic design issues and approaches to machine learning?	2M	1	L1
3	What is the representational power of perceptrons?	2M	2	L1
4	What is Rule Post Pruning?	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	Define the sample error and true error.	2M	5	L1

Part-B

Answer All the following questions. (5X10M=50Marks)		Marks	CO	BTL
11	Write candidate elimination algorithm. Apply the algorithm to obtain the final version space for the training example.	10M	1	L2

Sl. No.	Sky	Air temp	Humidity	Wind	Water	Forecast	Enjoy sport
1	Sunny	Warm	Normal	Strong	Warm	Same	Yes
2	Sunny	Warm	High	Strong	Warm	Same	Yes
3	Rainy	Cold	High	Strong	Warm	Change	No
4	Sunny	Warm	High	Strong	Cool	Change	Yes

	OR			
12	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
13	What is a decision tree & discuss the use of decision tree for classification purpose with an example.	10M	2	L2
	OR			
14	Discuss the decision learning algorithm and list the issues of decision tree learning.	10M	2	L2

15	Draw the perceptron network with the notation. Derive an equation of gradient descent rule to minimize the error.	10M	3	L2
	OR			
16	a) Prove Є-exhausting the version space theorem. b) With suitable example discuss a radial basis function network.	5M 5M	3	L2
17	Write Bayes theorem. What is the relationship between Bayes theorem and the problem of concept learning?	10M	4	L2
	OR			
18	Explain Naïve Bayes Classifier with an Example.	10M	4	L2
19	Discuss the learning tasks and Q learning in the context of reinforcement learning.	10M	5	L2
	OR			
20	Discuss the hypothesis space search in inductive- analytical approaches to learning.	10M	5	L2

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