R20 Regulation *Subject code: 3P5HC*

TKR COLLEGE OF ENGINEERING AND TECHNOLOGY

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

B.Tech V Semester Supplementary Examinations, February 2024

MACHINE LEARNING

(CSE (DS))

Maximum Marks: 70 Date:24.07.2024 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	CO	Bloom Tx
All the following questions carry equal marks (10X2M=20 Marks)			
1	What are the important objectives of machine learning?	CO1	2
2	What are the basic design issues and approaches to machine learning?	CO1	2
3	Define (a) Preference Bias (b) Restriction Bias	CO2	2
4	How to compute expected value and variance of a random variable?	CO2	2
5	State Naïve Bayes theorem.	CO3	2
6	How to use entropy as evaluation function?	CO3	2
7	What is domain theory?	CO4	2
8	What is analytical learning?	CO4	2
9	Define radial basis functions.	CO5	2
10	Define analytical learning.	CO5	2
	Part-B		
Answer All the following questions. (5X10M=50Marks)			
11	Write candidate elimination algorithm. Apply the algorithm to obtain the final version spacefor the training example. [10M]	CO1	5

Example	Sky	AirTemp	Humidity	Wind	Water	Forecast	EnjoySport
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	Warm	Change	Yes

OR

12	Explain the important features that are required to well –define a learning problem. [10M]	CO1	3,4
13	Draw the perceptron network with the notation. Derive an equation of gradient descent rule to minimize the error. [10M]	CO2	4
	OR		
14	Distinguish between inductive bias and estimation bias. [5M] Explain the methods for comparing the accuracy of two hypotheses[5M]	CO2	5
15	Explain the features of Bayesian learning methods. [10M]	CO3	4
	OR		
16	Prove Є-exhausting the version space theorem. [10M]	CO3	5
17	Write Bayes theorem. What is the relationship between Bayes theorem and the problem of concept learning? [10M]	CO4	4
	OR		
18	Explain Naïve Bayes Classifier with an Example [10M]	CO4	5
19	Discuss the hypothesis space search in inductive- analytical approaches to learning. [10M]	CO5	4
	OR		
20	Discuss the learning tasks and Q learning in the context of reinforcement learning. [10M]	CO5	5