R18 Regulation *Subject code:2E7EG*

TKR COLLEGE OF ENGINEERING AND TECHNOLOGY

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

B.Tech VII Semester Regular/Supplementary Examinations, November 2022

MACHINE LEARNING
(Professional Elective)

(Computer Science and Engineering)

Maximum Marks: 70 Date:05.12.2022 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)

1 State version space representation theorem.
2 Define machine learning? How it is different from programming
3 What do you understand by the Learning problems?
4 What is perceptron? Explain the basic components of perception with neat diagram
5 How overfitting is different from under fitting?
6 What do you mean by the Hypotheses Evaluation?
7 What are the different types of instance-based learning methods?
8 How to find an optimal K-value in KNN?
9 What is the basic concept of Genetic Algorithm?
10 What are dimensionality reduction and its benefits?

Part-B

Answer All the following questions. (5X10M=50Marks)

11 A. Which disciplines have their influence on machine learning? Explain with examples and What is inductive bias? 5M
B. What are the issues in machine learning? 5M

OR

12 A. Explain Linear Regression and Multiple Regression. 5M
B. Explain Candidate-Elimination Learning Algorithm using version spaces with example. 5M

13 A. Illustrate the impact of overfitting in a typical application of decision tree learning. 5M
B. Explain Back propagation algorithm. 5M

OR

14 A. Explain the learning in multilayer neural network with neat diagram? 5M
B. Discuss Cross Validation and Occam's razor with example 5M

15	A. Explain Bayes theorem.	5M
	B. How jackknife is different from bootstrap and Why VC dimension is important for machine learning?	5M
	OR	
16	A. Explain the concept of SVM soft margins and kernel function with example graph	5M
	B. Is Naive Bayes classifier is supervised learning? Explain with the help of example	5M
17	A. Compare and contrast between Lazy and eager learning.	5M
	B. What is the need of Clustering? Explain different Clustering Methods?	5M
	OR	
18	A. Explain in detail about the K-Nearest Neighbor Learning under instance-based learning.	5M
	B. Explain supervised and unsupervised learning. List the differences between them.	5M
19	A. Explain the architecture of Explanation-based Learning (EBL).	5M
	B. What are the steps involved in Principal Component Analysis (PCA)? Write any two advantages of Dimensionality Reduction.	5M
	OR	
20	A. Define Manifold Hypothesis and Multidimensional scaling.	5M
	B. Define genetic algorithm and Writ a short note on different search methods for induction.	5M