Printed Pages:2 **Sub Code:MTCS031**

Paper Id: 238411 **Roll No.** | | | | | | | | | | |

M. TECH.
(SEM II) THEORY EXAMINATION 2022-23
MACHINE LEARNING

Time: 3 Hours ***Total Marks: 70***

Note: Attempt all Sections. If require any missing data; then choose suitably.

SECTION A

1. Attempt *all* questions in brief. 2 x 7 = 14

(a) Describe the role of bias in ANN?
(b) Explain gradient descent delta rule?
(c) Explainperceptron in Artificial Neural Networks?
(d) Describe accuracy with suitable example.
(e) Explain sample complexity of a Learning Problem?
(f) Write and explain various issues in machine learning?
(g) Explain the problem of crowding in Genetic Algorithm?

SECTION B

2. Attempt any *three* of the following: 7 x 3 = 21

(a) Discuss any four examples of machine learning applications.
(b) How is Naïve Bayesian Classifier different from Bayesian Classifier?Explain.
(c) Define decision tree? Explain the function of decision tree.
(d) Discuss various Mistake Bound Model oflearning.
(e) Compare Classification with Regression with an example.

SECTION C

3. Attempt any *one* part of the following: 7 x 1 = 7

(a) Draw the block diagram of machine learning cycle and the role of its components.
(b) Explain the Concept Learning Task with an example.

4. Attempt any *one* part of the following: 7 x 1 = 7

(a) Define Neural Network? Explain Feed forward Neural Network.
(b) Compare and contrast single layered model and multilayer perceptron model.

5. Attempt any *one* part of the following: 7 x 1 = 7

(a) How is Candidate Elimination algorithm different from Find-S Algorithm?Explain.
(b) Distinguish between supervised learning and unsupervised learning. Illustrate with an example.

6. Attempt any *one* part of the following: 7 x 1 = 7

(a) Write short notes on:
   i) K-Nearest Neighbor Learning
   ii) Radial basis function networks

(b) Explain the Algorithmic convergence & Generalization property ofANN.

7. Attempt any *one* part of the following: 7 x 1 = 7

(a) Describe Reinforcement Learning? Classify the various reinforcement learning Algorithms.

(b) Explain the operations involved in Hypothesis Space searching through Genetic Algorithm?