

**R18**

**Code No: 156BN**

**JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD**

**B. Tech III Year II Semester Examinations, January/February - 2025**

**MACHINE LEARNING**

**(Common to CSE, CSIT, CSE(CS), CSE(DS), CSD)**

**Time: 3 Hours**

**Max. Marks: 75**

**Note:** i) Question paper consists of Part A, Part B.

ii) Part A is compulsory, which carries 25 marks. In Part A, Answer all questions.

iii) In Part B, Answer any one question from each unit. Each question carries 10 marks and may have a, b as sub questions.

**PART - A**

**(25 Marks)**

- 1.a) What is inductive bias? [2]
- b) What is well-posed learning problem? Give an example. [3]
- c) Write two definitions of Error. [2]
- d) Explain Recurrent Networks. [3]
- e) Write the difference between lazy and eager learning. [2]
- f) What is Locally Weighted regression? [3]
- g) What is parallelizing genetic algorithms? [2]
- h) Write about FOIL. [3]
- i) Write the differences between inductive and analytical approaches to learning. [2]
- j) Write FOCL algorithm. [3]

**PART - B**

**(50 Marks)**

- 2.a) Write Candidate Elimination algorithm. Explain with an example.
- b) What can you infer from remarks on version space and candidate elimination algorithm? [8+2]

**OR**

- 3.a) Why to use Decision Tree? Discuss the issues with it.
- b) What are Attribute Selection Measures? Explain.
- c) What is Pruning? [4+4+2]

4. Write Back-Propagation algorithm. Explain. Write remarks on it. [10]

**OR**

5. Describe the process of adjusting the interconnection weights in Multi-layer neural network. [10]

- 6.a) How does Bayesian Belief Network represent probabilistic relationships between variables?
- b) Explain the Maximum Likelihood Estimation (MLE) method and its significance in parameter estimation. [5+5]

**OR**

- 7.a) Write about Mistake-Bound model of learning.
- b) What is the Gibbs Algorithm? Explain. [5+5]

QA QA QA QA QA QA QA G

- 8.a) How does Sequential Covering algorithm work? Explain in detail.
- b) Write Genetic algorithm operators. [5+5]

QA QA QA QA **OR** QA QA QA G

- 9.a) What are Rewards and Actions? Write Q-learning algorithm.
- b) What is Temporal Difference learning? [7+3]

- 10.a) What are the key challenges in implementing Explanation-Based Learning? Explain.
- b) Write the main characteristics of Explanation-Based Learning. What is the main difference between EBL and other learning methods? [6+4]

QA QA QA QA **OR** QA QA QA G

- 11.a) Which of algorithm uses prior knowledge to alter search objective? Explain it.
- b) How to initialize the hypothesis by using prior knowledge? Explain. [5+5]

---ooOoo---

QA QA QA QA QA QA QA G

QA QA QA QA QA QA QA G

QA QA QA QA QA QA QA G

QA QA QA QA QA QA QA G

QA QA QA QA QA QA QA G