Total No. of Questions: 10] [Total no. of pages: 02

II/IV B. Tech. DEGREE EXAMINATIONS, JULY/AUGUST-2023

Second Semester

ARTIFICIAL INTELLIGENCE AND MACHINE LEARNING

ARTIFICIAL INTELLIGENCE

Time: Three Hours **Maximum: 70 Marks**

Answer ONE Question from each unit. **5 x 14 = 70 M**

All Questions carry equal marks.

UNIT-I

1. a) List and explain various types of AI with suitable examples.

   b) Evaluate performance of problem-solving method based on depth-first search algorithm.

(OR)

2. a) Describe the current trends in Artificial Intelligence (AI).

   b) What are heuristic search techniques? Explain various stages in an A^* search with an example.

UNIT-II

3. a) Write a short note o Knowledge based agent and Wumpus World Logic.

   b) Compare Propositional Logic and First order interference with examples.

(OR)

4. a) Consider a vocabulary with only three propositions, A, B, and C. Find, how many models are there for the following sentences?

   (a). $(A \wedge B) \vee (B \wedge C)$ (b). $A \vee B$ (c). $A \Leftrightarrow B \Leftrightarrow C$

   b) Describe the Forward Chaining and Backward Chaining with an example in First Order Logic.

UNIT-III

5. a) Explain the Semantic Nets with suitable examples.

   b) What are the Reactive Systems? Why we need Reactive Systems. Explain in detail.

(OR)

6. a) Define scripts? Illustrate various components in scripts.

    b) Implement the Goal Stack Planning for a World Blocks problem.

UNIT-IV

7. a) What is Learning? Summarize the various forms of learning with suitable examples.

    b) Write a short note on Expert system shells with examples.

(OR)

8. a) What do you mean by Explanation-Based Learning? Describe the EBL Architecture with neat sketch.

    b) Explain the Knowledge Base (Representing and Using domain Knowledge) Experts systems with examples.

UNIT-V

9. a) What is image segmentation and explain its types with examples?

    b) List out the different Robotic Perception that can be achieved? Explain in detail.

(OR)

10. a) Outline the types of object recognition with suitable examples.

    b) Discuss the various hardware components required for the operation of a robot.