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Total No. of Pages : 02

Total No. of Questions : 09

**B.Tech. (AI&ML/CSE) (Sem.–5)**

**ARTIFICIAL INTELLIGENCE**

**Subject Code :BTAIML-502-20**

**M.Code :93174**

**Date of Examination : 29-11-2025**

**Time : 3 Hrs.**

**Max. Marks : 60**

**INSTRUCTIONS TO CANDIDATES :**

1. **SECTION-A** is **COMPULSORY** consisting of **TEN** questions carrying **TWO** marks each.
2. **SECTION-B** contains **FIVE** questions carrying **FIVE** marks each and students have to attempt any **FOUR** questions.
3. **SECTION-C** contains **THREE** questions carrying **TEN** marks each and students have to attempt any **TWO** questions.

**SECTION-A**

**1. Write briefly :**

- a. What is the difference between an agent and an environment in AT?
- b. Explain the concept of iterative deepening in depth-first search.
- c. What is the purpose of constructing Search Trees?
- d. Differentiate between Forward Chaining and Backward Chaining.
- e. What is Heuristic Search and how does Hill Climbing contribute to it?
- f. Define non-monotonic reasoning.
- g. Write a short note on Bayes' Rule.
- h. What is Rote Learning and how does it differ from other learning methods?
- i. Write a short note on learning by taking advice.
- j. What is an expert system?

## **SECTION - B**

2. Explain the concept of Problem Spaces in AI and its role in solving problems with agents.
3. What is meant by stochastic search? What problem does it help to overcome compared to deterministic search methods?
4. Explain the issues involved in knowledge representation.
5. Discuss the role of Decision Trees in classifying data with an example.
6. Describe the role of explanation facilities and how they improve user interaction in expert systems?

## **SECTION - C**

7. Discuss the structure of agents in AI, their interaction with environments and the role of problem-solving agents.
8. Explain the Minimax algorithm and describe how Alpha-Beta pruning significantly improves its efficiency by cutting off irrelevant search branches using alpha and beta bounds?
9. Discuss the process of Learning from examples, including how Winston's Learning Program enhances it with Decision Trees?

**NOTE : Disclosure of Identity by writing Mobile No. or Making of passing request on any page of Answer Sheet will lead to UMC against the Student.**