B.Tech. (CSE) (Sem.–6)
ARTIFICIAL INTELLIGENCE
Subject Code : BTCS602-18
M.Code : 79250
Date of Examination : 13-12-2023

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 role of intelligent agents in solving AI problems?

   b) What is Q-learning algorithm in reinforcement learning?

   c) What is the role of AI in game playing?

   d) What is a search tree?

   e) What are the shortcomings of heuristic search?

   f) What is adaptive dynamic programming?

   g) What is reinforcement learning?

   h) Explain decision tree.

   i) What is backtracking?

   j) What is Markov decision process?

SECTION-B

2. Discuss the various issues and challenges in Artificial Intelligence.

3. Explain random search with closed and open list.

4. **Write short notes on:**

   a) Bayesian Networks

   b) Game Search.

5. Explain the Markov property in detail. What is utility theory?

6. Write short notes on:

   a) Hidden Markov Model

   b) Direct Utility Estimation.

SECTION-C

7. a) Differentiate between active reinforcement learning and passive reinforcement learning.

   b) What is breadth first search? Give the algorithm for breadth first search on graph.

8. Write short notes on:

   a) Temporal Difference Learning

   b) A* algorithm.

9. **Explain:**

   a) Partially observable MDP's

   b) State Space Representations.

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.