

JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT

TEST -2 EXAMINATION - 2024

B. Tech - VIII Semester (ECE)

COURSE CODE (CREDITS): 18B1WEC838 (3)

MAX. MARKS: 25

COURSE NAME: ARTIFICIAL INTELLIGENCE TECHNIQUES

COURSE INSTRUCTORS: Dr Emjee Puthooran

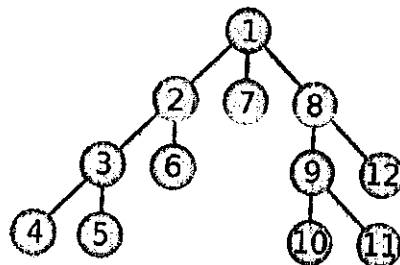
MAX. TIME: 1 Hour 30 Minutes

*Note: (a) All questions are compulsory.*

*(b) Marks are indicated against each question in square brackets.*

*(c) The candidate is allowed to make Suitable numeric assumptions wherever required for solving problems*

- Q1. What is the difference between being intelligent and demonstrating intelligent behavior?  
Give an example. [CO1, 2M]
- Q2. What is a problem-solving agent? Describe the general scheme of problem formulation and finding its solution in the context of the problem-solving agent. [CO3, 2M]
- Q3. What is the Turing test? Contrast it with the Chinese room problem. [CO1, 3M]
- Q4. Briefly explain about Supervised Learning, Unsupervised Learning and Reinforcement Learning in the context of a Learning agent. [CO2, 3M]
- Q5. Discuss the concept of utility-based agents in artificial intelligence. Explain how utility functions are used to represent preferences and goals within these agents. Provide examples of real-world applications where utility-based agents can be effectively utilized, and analyze the advantages and limitations of this approach. [CO2, 5M]
- Q6. In the tree structure shown below, '1' is the starting node and '10' is the goal node. Write a Python program to find the solution using Depth First Search algorithm. [CO3, 5M]



Q7. The start state and goal state of the 8-puzzle problem is given in the figure below. Using A\* algorithm, find its solution. State clearly the cost function used and heuristic function used.

[CO3, 5M]

7	2	4
5		6
8	3	1

Start State

	1	2
3	4	5
6	7	8

Goal State

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