



SCHOOL OF COMPUTER SCIENCE ENGINEERING AND INFORMATION SYSTEMS
CONTINUOUS ASSESSMENT TEST - I
FALL SEMESTER 2025-2026

SLOT: D1+TD1

Programme Name & Branch : B. Tech (IT)
Course Code and Course Name : BITE308L- Artificial Intelligence
Faculty Name(s) : Valarmathi B , Hemalatha S , Tapan Kumar Das
Class Number(s) : VL2025260103843, 3847, 3848
Date of Examination : 20/08/2025
Exam Duration : 90 minutes **Maximum Marks: 50**

General instruction(s):

- Answer All Questions
- M - Max mark; CO – Course Outcome; BL – Blooms Taxonomy Level (1 – Remember, 2 – Understand, 3 – Apply, 4 – Analyse, 5 – Evaluate, 6 – Create)
- Course Outcomes
 1. Elucidate various Artificial Intelligence techniques and their areas of applications
 2. Solve various real-world problems using Artificial Intelligence techniques

Q. No	Question	M	CO	BL																
1.	a) Define in your own words the following terms: Intelligent agent, Stochastic environment, State space b) For the given agent types specify PEAS description and properties of Environment description: Taxi driving, Part picking robot	6 4	1	2																
2.	a) Assume an artificial agent that learns how to play a carom board by playing multiple times and receiving feedback from experts. Which type of agent is best for this player? Justify your answer with illustration and brief explanation of the agent architecture. b) Why is it important to know if an agent's environment is fully observable or partially observable? Brief your answer with an example.	6 4	1	4																
3.	Explain the Hill climbing search. Solve the following blocks problem using Hill climbing algorithm. Also formulate a heuristic function and show the state of local maxima. Initial state: <table><tr><td>A</td></tr><tr><td>H</td></tr><tr><td>G</td></tr><tr><td>F</td></tr><tr><td>E</td></tr><tr><td>D</td></tr><tr><td>C</td></tr><tr><td>B</td></tr></table> Goal state: <table><tr><td>H</td></tr><tr><td>G</td></tr><tr><td>F</td></tr><tr><td>E</td></tr><tr><td>D</td></tr><tr><td>C</td></tr><tr><td>B</td></tr><tr><td>A</td></tr></table>	A	H	G	F	E	D	C	B	H	G	F	E	D	C	B	A	10	2	5
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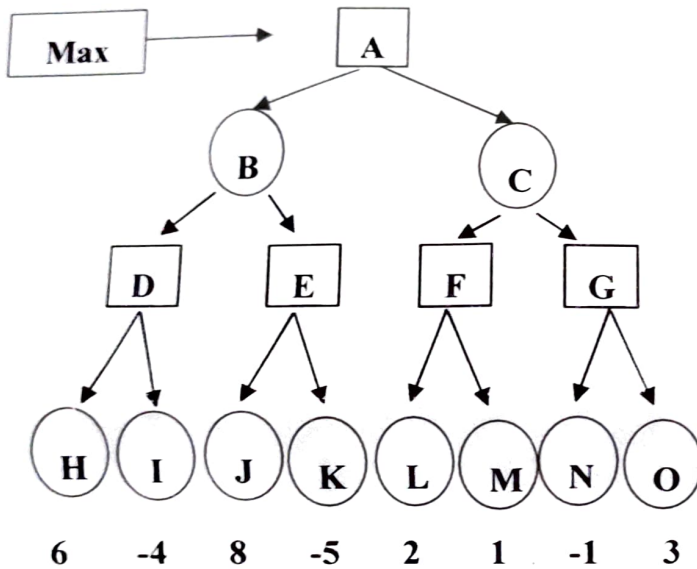


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Solve the following water jug problem using Breadth- First- Search (BFS) and Depth- First- Search (DFS) algorithms:
You are given two jugs, 4- litre one and 3- litre one. Neither has any measuring marks on it. There is a pump that can be used to fill the jugs with water. How can you get exactly 2 litres of water into the 4-litre jug?
Also perform a complexity analysis for these search techniques.

5. Given the following search tree,



i) Apply Minmax algorithm

ii) Apply the alpha-beta pruning algorithm to it and show the search tree that would be built by this algorithm. Make sure that you show where the alpha and beta cuts are applied, and which parts of the search tree are pruned as a result.
