JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT

TEST -1 EXAMINATION- 2025

B.Tech-VII Semester (CSE/IT/ECE/CE/BT/BI)

COURSE CODE (CREDITS): 18B1WCI742 (3)

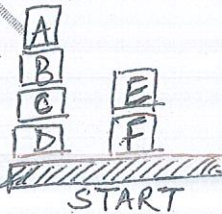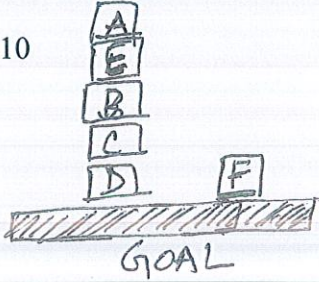MAX. MARKS: 15

COURSE NAME: Artificial Intelligence

COURSE INSTRUCTORS: HRI/KTS/SRJ   MAX. TIME: 1 Hour

Note: (a) *All questions are compulsory.*
   (b) *The candidate is allowed to make Suitable numeric assumptions wherever required for solving problems*

Q.No	Question	CO	Marks
Q1	(a) Draw a neat and clean diagram to show the relationship among an autonomous agent, world, goal, other agents, and other events. (b) What is the output of the following on a set and list Head second(1,[101, 102, 103], null) (c) Write the computed values of a, h, t, and c on a set and list. (a, h : t, c) = (1,[101, 102, 103], null)	CO1	[3]
Q2	Draw a state space representation to solve the water jug problem. The problem has three jugs with capacity 8, 5, and 3 liters. The 8 liter jug is filled with water. The 5 liter and 3 liter jugs are empty. Measuring 4 liter water in both 8 liter and 5 liter jug is the goal state. Note that there are no label marks on the jugs and water should not be dropped at any stage from the jugs.	CO1	[3]
Q3.	Compare Depth First Search and Breadth First Search Algorithms. Provide justification for each argument.	CO1	[3]
Q4.	Solve the following Block World Problem shown in the Fig. with a given start state and a goal state using Hill-Climbing Search Algorithm having the heuristic function h = Add n if the block is on a correct structure of n blocks; Subtract n if the block is on a wrong structure of n blocks Given h(Start) = -1 and h(Goal) = 10 	CO1	[3]
Q5	Write the Hill-Climbing Algorithm. Discuss time complexity, space complexity, quality of solution, and completeness characteristic of this algorithm.	CO1	[3]