15 MAY 2023

D Y PATIL UNIVERSITY
RAMRAO ADIK INSTITUTE OF TECHNOLOGY

RAMRAO ADIK INSTITUTE OF TECHNOLOGY, NERUL

(D Y Patil Deemed to be University)

Program: B.Tech
End Semester Examination: B.Tech Semester VI
Course Code: CECDLO6042 Course Name: Artificial Intelligence
Time: 2 hours
Max. Marks: 60

Instructions: 1. All three questions are compulsory

Que. No.	Question	Max. Marks	CO	BT
Q1	Solve any **Four**			
i)	Compare between AI and Non AI techniques	5	CO1	BT2
ii)	Summarize the working of iterative deepening depth first search along with its time and space complexity.	5	CO2	BT2
iii)	Prove that A* is optimal if h(n) is admissible.	5	CO3	BT4
iv)	Differentiate between Forward chaining and backward chaining.	5	CO4	BT2
v)	Explain any five defuzzification methods.	5	CO5	BT1
vi)	What is Hierarchical planning in AI? Explain with example.	5	CO6	BT3

Que. No.	Question	Max. Marks	CO	BT
Q2 A	Solve any **Two**			
i)	Exemplify Partial order planning.	5	CO6	BT3
ii)	Consider a knowledgebase and apply resolution. 1. Cats like fish 2. Cats eat everything they like 3. Mani is a cat Prove that "Mani eats fish" using first order predicate logic.	5	CO4	BT3
iii)	Write the steps of problem formulation and apply it to 8-puzzle problem.	5	CO1	BT3
iv)	Compare various uninformed search strategies.	5	CO2	BT2
Q 2 B	Solve any **One**			
i)	Consider the graph given below. Assume that the initial state is S and the goal is G . Show how A* Search would create a search tree to find a path from the initial state to the goal state: At each step of the search algorithm, show which node is being expanded and the content of fringe(OPEN).Report the solution cost Assuming the straight-line distance as the heuristics function: h(S)=13, h(A)=7, h(B)=9, h(C)=11, h(D)=2, h(E)=4, h(F)=1 and h(G)=0.	10	CO3	BT5

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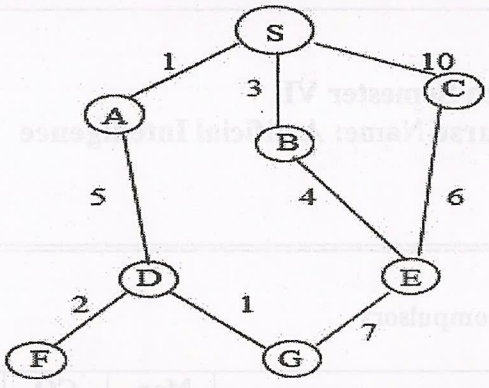
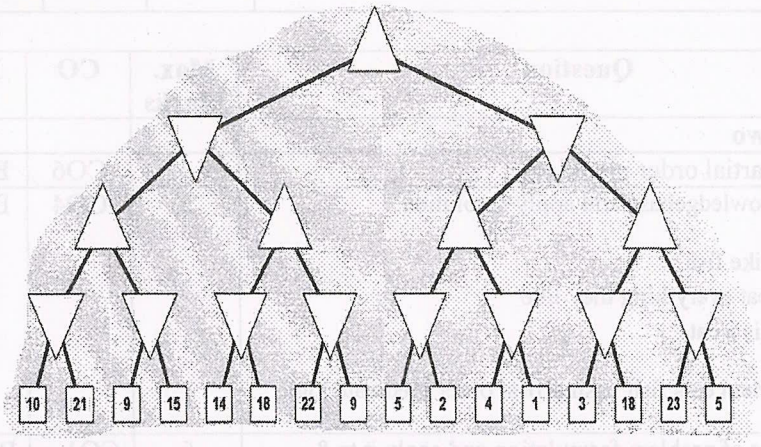
				
ii)		10		

Que. No.	Question	Max. Marks	CO	BT
Q3	Solve any **Two**			
i)	Design a fuzzy controller for a train approaching station. The inputs are distance from station & speed of train. The output is break power. Use triangular function and four descriptor for each variable.	10	CO5	BT5
ii)	Apply alpha-beta pruning on example given below, consider the first node as max. 	10	CO3	BT5
iii)	Write a short notes on the simple reflex and utility based agent	10	CO1	BT2

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Course Outcomes (CO) -Learner will be able to:

CO1: Identify the various characteristics of Artificial Intelligence techniques.
CO2. Choose an appropriate uninformed problem solving.
CO3. Apply informed search techniques for real world problem solution.
CO4. Analyze and apply the knowledge representation and reasoning to AI problem solving.
CO5. Design fuzzy inference system.
CO6. Understand and apply various planning strategies to perceive the real world.

BT1- Remembering, BT2- Understanding, BT3- Applying, BT4- Analyzing, BT5- Evaluating, BT6- Creating

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CORRECTIONS

Q. 2 B
ii) What is a fuzzy inference system (FIS)? Give the basic structure of FIS. Explain it briefly. (Marks:10)