SVKM's NMIMS
MUKESH PATEL SCHOOL OF TECHNOLOGY MANAGEMENT & ENGINEERING / SCHOOL OF TECHNOLOGY MANAGEMENT & ENGINEERING

Academic Year: 2021-22

Programme: B.Tech / MBA Tech (Computer) Year: III Semester: VI

Subject: Artificial Intelligence

Date: 06 April 2022

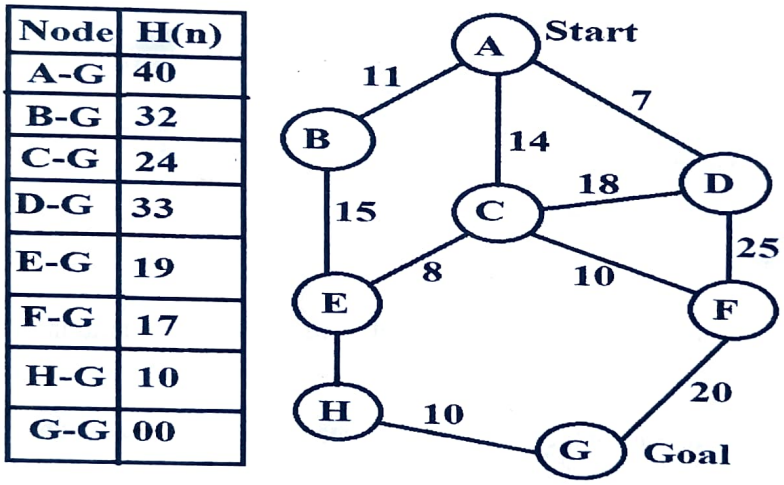
Marks: 100
Time: 10.00 am to 1.00 pm
Durations: 3 (hrs)
No. of Pages: 3

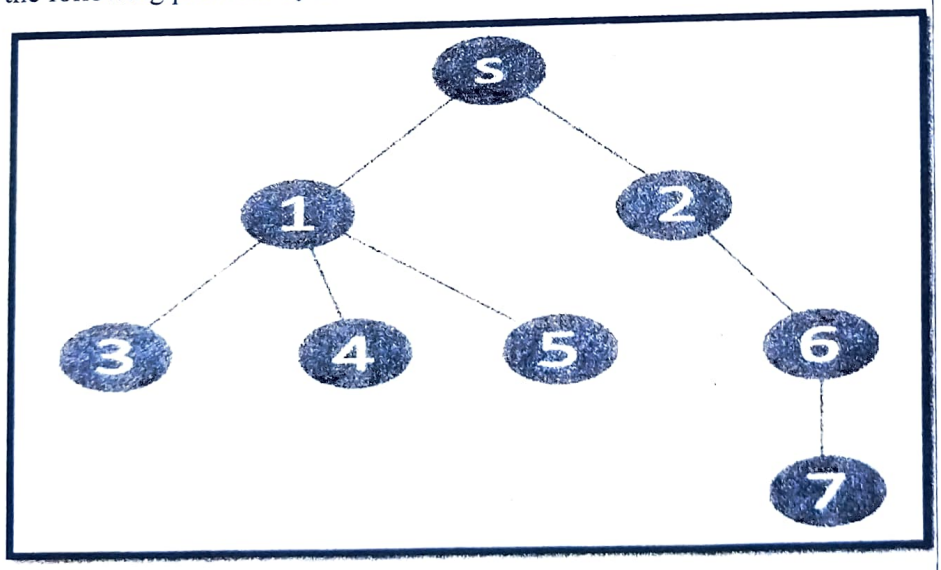
Final Examination

Instructions: Candidates should read carefully the instructions printed on the question paper and on the cover of the Answer Book, which is provided for their use.

1) Question No. _1___ is compulsory.
2) Out of remaining questions, attempt any __4___ questions.
3) **In all ___5_ questions to be attempted.**
4) All questions carry equal marks.
5) **Answer to each new question to be started on a fresh page.**
6) **Figures in brackets on the right hand side indicate full marks.**
7) **Assume Suitable data if necessary.**

Q1		Answer briefly:	[20]
CO-2; SO-1; BL-M	a.	Discuss the algorithms of Depth limited search and uniform cost search with suitable examples.	[05]
CO-1 ; SO-2; BL-H	b.	For each of the following activities, give a PEAS description of the task environment: 1. Shopping for used books on e-commerce site. 2. Playing a basketball match 3. Practicing tennis against a wall. 4. Performing a high jump. 5. Bidding on an item at an auction.	[05]
CO-3; SO-1; BL-M	c.	Explain unification algorithm with suitable example?	[05]
CO-4; SO- 1; BL-M	d.	Differentiate between robots and AI programs. Explain various components of robots?	[05]
Q2	a.	For each of the following assertions, say whether it is true or false and support your answer with examples or counterexamples where appropriate.	[10]

CO-1; SO-2; BL-M		A) An agent that senses only partial information about the state cannot be perfectly rational. B) There exist task environments in which no pure reflex agent can behave rationally. C) There exists a task environment in which every agent is rational. D) The input to an agent program is the same as the input to the agent function. E) Every agent function is implementable by some program/machine combination.	
Q2 CO-2; SO-1; BL- M	b.	Why A* search technique is called the Informed search technique. Also solve the following problem by A* Search Method.  	[10]
Q3 CO-3; SO-1; BL-M	a.	Write a note on backward chaining with example. What are the drawbacks of Forward chaining and Backward chaining? Explain with example?	[10]
Q3 CO-4; SO-1; BL-M	b.	Explain constraint propagation using intelligent backtracking with an example?	[10]

Q4 CO-04; SO-7; BL-M	a.	What is decision Tree? List down the attribute selection measures used in decision tree classification. Illustrate decision tree algorithm with an suitable example.	[10]
Q4 CO-3; SO-1; BL-M	b.	What are the different characteristics of expert system? Explain rule based expert system?	[10]
Q5 CO-4; SO-6; BL-M	a.	Discuss the steps involved in NLP. Write implementation aspect of syntactic analysis.	[10]
Q5 CO-4; SO-6; BL-H	b.	Analyze K-means algorithm with a suitable example.	[10]
Q6 CO-2; SO-1; BL-M	a.	Write the difference between Breadth first search and depth first search technique. Why these technique called as uninformed search. Also solve the following problem by Breadth first search technique. 	[10]
Q6 CO-4; SO-6; BL-M	b.	Write a note on self-driving car. Describe the complete method of auto driving.	[10]

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