Sardar Patel Institute of Technology

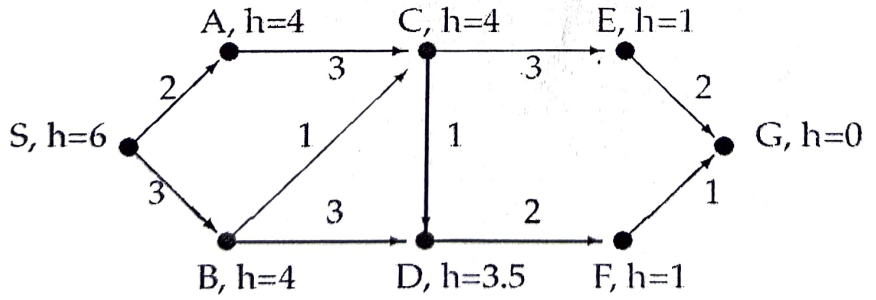
Bhavan's Campus, Munshi Nagar, Andheri (West), Mumbai-400058-India

(Autonomous College Affiliated to University of Mumbai)

Mid Semester Examination
October 22-23

Max. Marks: 20 | **Duration: 01 hour**
Class: T.E. | **Semester: V**
Course Code: CS/IT303B | **Branch: IT/COMP**
Name of the Course: Artificial Intelligence and Machine Learning

Instructions:
(1) All Questions are Compulsory
(2) Draw neat diagrams
(3) Assume suitable data if necessary

Q. No.	QUESTION	Max. Marks	CO-B L-PI
Q1	Explain the Properties of the Task environment with suitable examples of each. **OR** Describe the following agents with a neat diagram 1- Utility-based agent 2- Learning agent.	04	**1-4-1**
Q2	Describe different criteria that are used to evaluate the performance of searching algorithms.	04	**2-2**
Q3	Suppose we want to use the IDA* algorithm (tree version) on the graph below to find the shortest path from node S to node G. Each node is labeled by a capital letter and the value of a heuristic function. Each edge is labeled by the cost to traverse that edge. 1-show the updated f_ bound and f_new value at each iteration. 2- show the solution path 3-Make this example inadmissible by changing the heuristic value at one of the nodes. What will be the effect of making the heuristic inadmissible on this search algorithm? 	06 (3+1 +2)	**2-4-1**

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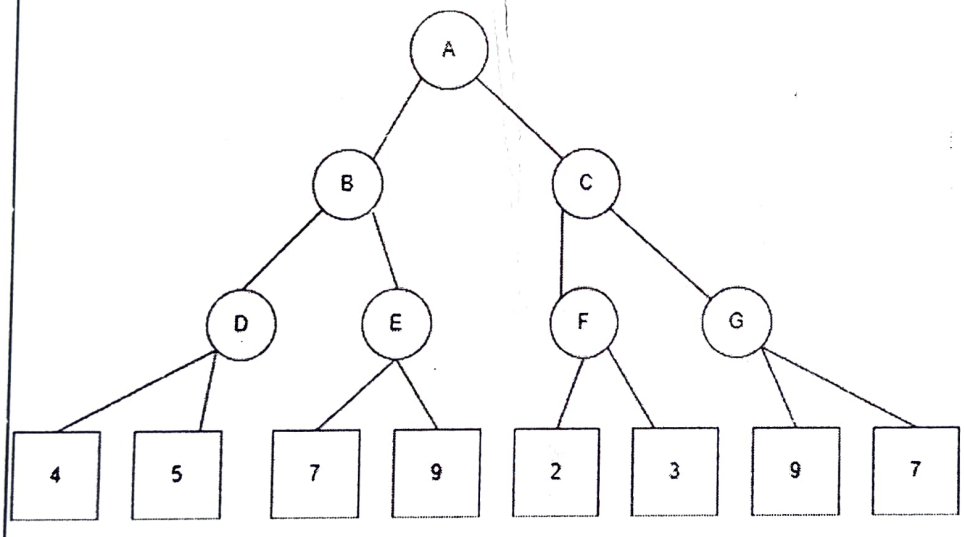
Q4	1- What is adversarial search? 2- What do you understand by payoff? 3- Given the utility values at the leaf node, apply the alpha-beta pruning algorithm for the figure below. Find the alpha value, beta value, and node value of each node. Also, show the pruning criteria applied along with pruned nodes and subtrees.  	06 (1+1+ 4)	2-3