

GYANMANJARI INNOVATIVE UNIVERSITY

GYANMANJARI INSTITUTE OF TECHNOLOGY

B.Tech.-Mid Semester Examination (MSE)-W2026

Enrollment No.: _____

Subject Code: BETCE15314

Subject Name: Artificial Intelligence

Time: 10:30 AM to 12:30 PM

Date: 19/09/2026

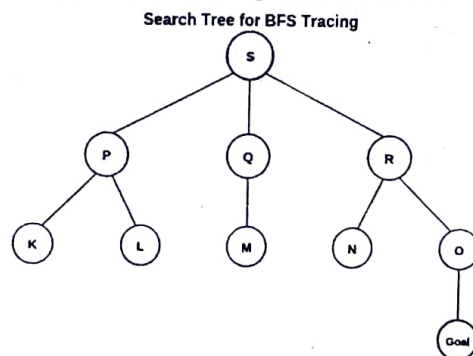
Semester: 5th

Total Marks: 60

Instructions:

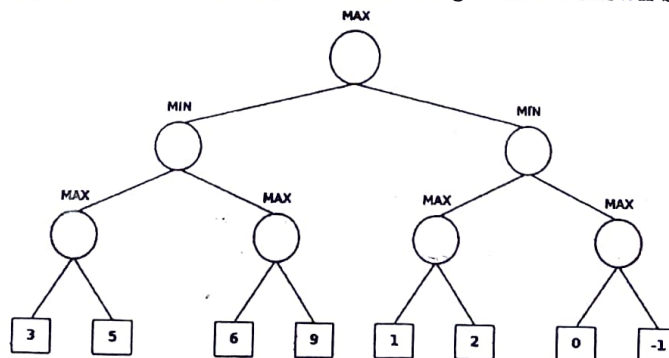
1. Question No. 1 is compulsory.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.

- Q.1 (a) Define Artificial Intelligence and their Applications. Marks
05
- (b) Describe semantic networks with a suitable diagram. 05
- (c) Develop a solution using the Breadth-First Search (BFS) algorithm to reach the given goal node and show the path.



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- Q.2 (a) Describe the components of an AI program. 05
- (b) Define Expert Systems and their characteristics. 05
- OR
- (b) Define the role of the Inference Engine in the Expert System. 05
- (c) Apply the Minimax algorithm on the game tree shown below.

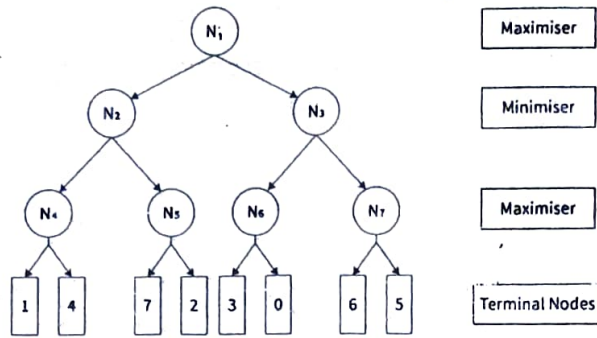


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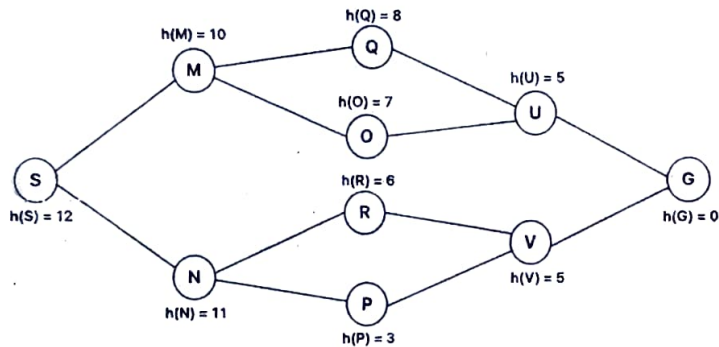
OR

- (c) Apply the Alpha-Beta pruning on the game tree shown below and identify the pruned branches.

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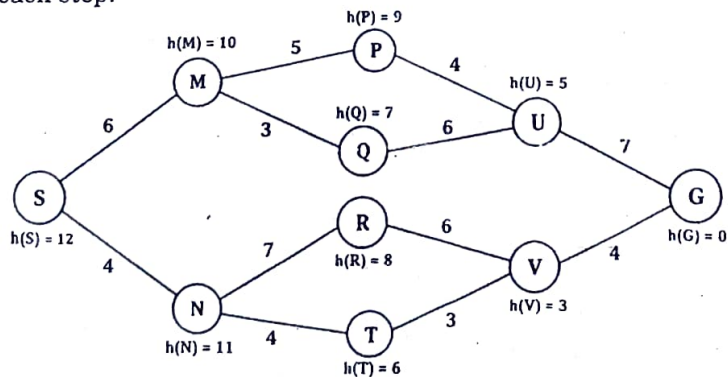
- Q.3 (a) Analyze Predicate Logic and explain its quantifiers with suitable examples. 05
- (b) Evaluate the planning steps required for the task "making tea" using the planning approach studied. 05
- (c) What is heuristic search? Using the graph shown below, find the path from S to G using Greedy Best-First Search, showing the node expanded at each step.



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OR

- Q.3 (a) Compare Forward Chaining and Backward Chaining with suitable examples. 05
- (b) Evaluate the working of Goal Stack Planning using a Block-World example. 05
- (c) What is heuristic search? Using the graph shown below, find the path from S to G using A*, showing the node expanded at each step.



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