Exam No: _____

GANPAT UNIVERSITY
B. TECH SEM-VI (CE/IT/ CE-AI/CE-IOT/IT-IOT)
FIRST INTERNAL EXAMINATION – FEBRUARY-MARCH 2023
2CEIT602: Artificial Intelligence

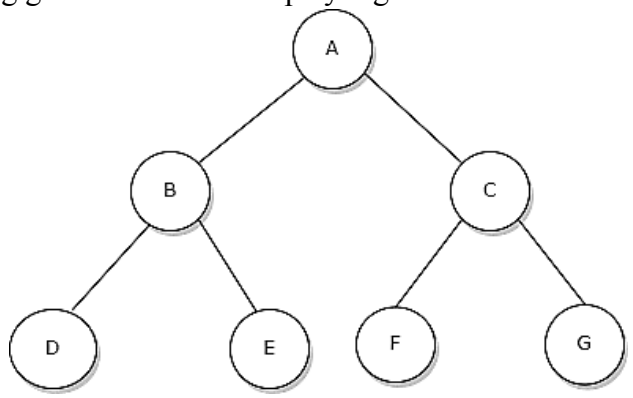
TIME: 1 Hour **TOTAL MARKS: 20**

Instructions:
1) Figures to the right indicate full marks.
2) Be precise and to the point in your answer.
3) The text just below marks indicates the Course Outcomes Numbers, (CO) followed by the Bloom's taxonomy level of the question,
i.e., R: Remember, U: Understand, A: Apply, N: Analyze, E: Evaluate, C: Create.

Q.1 Discuss Production Rules by example. Draw Rule-based Expert System Architecture. **[5]**
3U

Q.2 Analyze, how the combinatorial explosion affects the efficiency of search algorithms for TSP, and what techniques can be used to mitigate this issue. **[5]**
1N

Q.3 Consider the following game tree for a two-player game: **[5]**
1A



Assume that it is Player 1's turn to move, and Player 2's objective is to minimize Player 1's score. Apply the minimax algorithm to determine the best move for Player 1. Assume that the scores for each leaf node are as follows:
D: 3
E: 6
F: 2
G: 5
Note that nodes A, B, and C do not have scores, as they are not terminal nodes. Show your steps of the algorithm by applying them on the given graph and indicate the best move for Player 1.

Q.4 How can we apply the state space search algorithm in Artificial Intelligence to schedule students' lectures in a way that maximizes the use of available resources, such as classrooms and faculties, while minimizing conflicts and ensuring that all students can attend their required courses? **[5]**
3A

----------END OF PAPER----------