

APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY

Second Semester MCA (2 Year) Degree Examination June 2022

Course Code: 20MCA188**Course Name: ARTIFICIAL INTELLIGENCE**

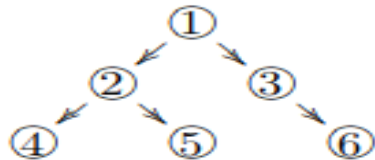
Max. Marks: 60

Duration: 3 Hours

PART A*Answer all questions, each carries 3 marks.*

Marks

- | | | |
|---|--|-----|
| 1 | List major application areas in AI | (3) |
| 2 | Explain the classes of production system. | (3) |
| 3 | Define search tree and illustrate with an example. | (3) |
| 4 | Consider the following graph: | (3) |



Starting at root node 1, give the order in which the nodes will be visited by the breadth-first and depth-first algorithms.

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|----|---|-----|
| 5 | Explain the strategy of minimax algorithm. | (3) |
| 6 | Why the alpha-beta pruning method is better than the minimax search method in solving a game? | (3) |
| 7 | Explain the existential and universal quantifiers in First Order Logic. | (3) |
| 8 | List components of a planning system. | (3) |
| 9 | Discuss the roles of individuals who interact with expert system. | (3) |
| 10 | Define a fuzzy set. | (3) |

PART B*Answer any one question from each module. Each question carries 6 marks.***Module I**

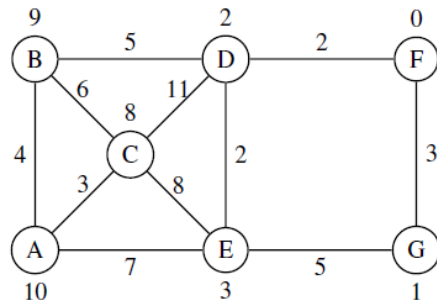
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|----|---|-----|
| 11 | Explain the blocks world problem in AI. | (6) |
|----|---|-----|

OR

- 12 Define production systems. Explain the components of a production system. (6)

Module II

- 13 Using the greedy best first search algorithm, find an optimal path from A to F in the search graph given below. In the figure, the numbers written alongside the nodes are the values of the heuristic function and the numbers written alongside the edges are the costs associated with the edges. (6)



OR

- 14 Explain about admissible heuristic function with example. (6)

Module III

- 15 Explain alpha-beta pruning algorithm with an example. (6)

OR

- 16 Explain about Frames and Conceptual Dependency. (6)

Module IV

- 17 Explain resolution-refutation method in FOPL with an example. (6)

OR

- 18 Explain
 a) Goal stack planning. (6)
 b) Hierarchical planning

Module V

- 19 Illustrate the architecture of expert system and mention its features. (6)

OR

- 20 Define the set-theoretic operations for fuzzy sets with suitable examples. (6)
