Reg No.:_____ Name:_____

0520MCA188072101

APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY

Second Semester MCA (2 Year) Degree Examination July 2021

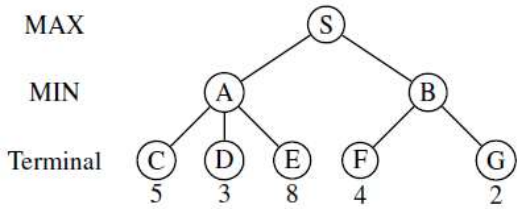
Course Code: 20MCA188

Course Name: ARTIFICIAL INTELLIGENCE

Max. Marks: 60 Duration: 3 Hours

PART A

Answer all questions, each carries 3 marks. Marks

1	Define an agent and rational agent in AI.	(3)
2	Solve the following crypt arithmetic problem. EAT + THAT APPLE	(3)
3	Compare and contrast BFS and DFS methods.	(3)
4	Define a heuristic function and an admissible heuristic function with examples.	(3)
5	Compute MINIMAX(S) in the following game tree. 	(3)
6	List the requirements for knowledge representation systems in AI.	(3)
7	Explain the inference rules in FOPL.	(3)
8	Describe supervised, unsupervised and reinforcement learning.	(3)
9	Give a short note on role of an expert system	(3)
10	List some membership functions that define a certain special fuzzy sets.	(3)

PART B

Answer any one question from each module. Each question carries 6 marks.

Module I

11	Solve missionaries and cannibals problem.	(6)

OR

12 Describe a production system in AI. What are the merits and demerits of production systems? (6)

Module II

13 Explain various uninformed search strategies. (6)

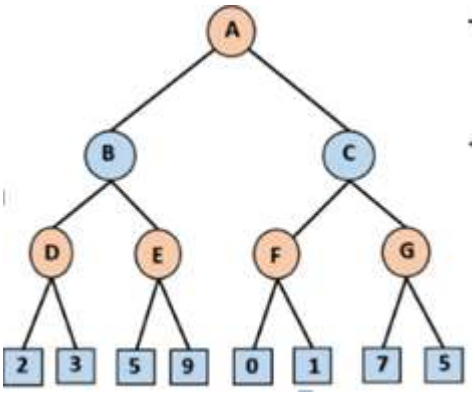
OR

14 Explain the following types of hill climbing: (6)

a. Simple hill climbing.
b. Steepest-ascent hill climbing

Module III

15 Explain alpha-beta pruning and determine which of the branches in the game tree below will be pruned if we apply alpha-beta pruning to solve the game (Assume that the maximising player plays first). (6)



OR

16 a) Describe the different types of semantic networks with examples. (3)

b) List advantages and disadvantages of semantic networks. (3)

Module IV

17 Explain the algorithm to convert WFF to clause with an example (6)

OR

18 Explain Neural net and Genetic learning methods in AI (6)

Module V

19 Briefly explain about typical expert systems. (6)

OR

20 Given the fuzzy sets (6)
A = {0.3/2, 0.4/3, 0.1/4, 0.8/5, 1.0/6}
B = {0.7/4, 0.5/5, 1.0/6, 0.02/7, 0.75/8} find $A \cup B$ and $A \cap B$.

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