Reg No.: [illegible] Name: [illegible]

APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY

MCA (Two Years) S2 (R,S) / PhD Examination May 2025

Course Code: 20MCA188

Course Name: ARTIFICIAL INTELLIGENCE

Max. Marks: 60 Duration: 3 Hours

PART A

Answer all questions, each carries3 marks. Marks

1	What is artificial intelligence? List its applications.	(3)
2	Explain any three problem characteristics of AI.	(3)
3	Compare Depth First Search and Breadth First Search.	(3)
4	What is hill climbing? Explain its disadvantages.	(3)
5	What is two player zero sum game? Explain.	(3)
6	List the requirements for knowledge representation systems in AI.	(3)
7	Explain the inference rules in FOPL.	(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

11 Consider a water jug problem. You are given two jugs, a 4 gallon and 3 gallons. Neither has any measuring markers on it. There is a pump that can be used to fill the jugs with water. How can you get exactly 2 gallons of water into 4-gallon jug? State the production rule for water jug problem. (6)

OR

12 Explain crypt arithmetic problem. Solve the following: (6)

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  CROSS
+ ROADS
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DANGER
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Module II

13 Explain blind search strategies in detail. (6)

OR

14 Explain the simulated annealing algorithm with an example. (6)

Module III

15 What is semantic network? Draw the semantic network of the following statements: (6)

a. Tom is cat

b. Tom caught a bird

c. Cats like ice cream

d. A cat is a mammal

e. A bird is a mammal

f. All mammals are animals

OR

16 Explain Min-Max algorithm with a suitable example. (6)

Module IV

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

OR

18 Explain goal stack planning with an example. (6)

Module V

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

OR

20 Given the fuzzy sets (6)

A = {0.4/1, 0.3/2, 0.5/4, 0.8/6, 1.0/7}

B = {0.5/2, 0.6/3, 0.8/4, 0.9/5, 1.0/6}

Find A ∪ B and A ∩ B

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