Reg No.:_____ Name:_____

APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY

Fifth Semester B.Tech Degree Regular and Supplementary Examination December 2022 (2019 Scheme)

Course Code: AIT 307

Course Name: INTRODUCTION TO ARTIFICIAL INTELLIGENCE

Max. Marks: 100 Duration: 3 Hours

PART A

(Answer all questions; each question carries 3 marks) Marks

1		How the definitions of artificial intelligence organized into four categories?	3
2		What is a Turing test approach?	3
3		What are the disadvantages of BFS search algorithm?	3
4		How the vacuum cleaner world formulated as a toy problem?	3
5		Explain the six elements of the search problem for the game tic-tac-toe.	3
6		What are the components of a map colouring CSP problem?	3
7		Write the PEAS description of the Wumpus world.	3
8		What are the steps involved in Knowledge Engineering in FOL?	3
9		What are the components of the agents to be learned? Explain with an example.	3
10		Describe the various forms of learning?	3

PART B

(Answer one full question from each module, each question carries 14 marks)

Module -1

11	a)	Discuss about any five disciplines that contributed ideas, viewpoints, and techniques to AI	7
	b)	Explain the properties of task environments.	7
12	a)	Discuss about any five applications of AI.	7
	b)	Explain the structure of Simple reflex agents and Model-based reflex agents with the help of diagrams.	7

Module -2

13	a)	What are the components of a well-defined AI problem? Explain each component based on 8-Queen problem.	7
	b)	Describe any three uninformed search strategies.	7

14 a) What are the real-world problems? Discuss about any two real world problems. 7

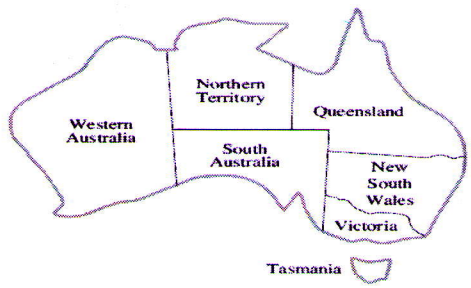
b) Explain the recursive best first search algorithm with diagram. 7

Module -3

15 a) Explain the MINIMAX algorithm with an example. 7

b) What is a constraint satisfaction problem? Formulate the job-shop scheduling as a CSP problem. 7

16 a) Solve graph colourings problem for the following graph given below using backtracking search for CSP. 7



b) Explain the following terms. 7

a. Constraint Graph

b. Topological Sort

Module -4

17 a) What are the basic elements of the syntax of a First Order Logic? 7

b) Convert the following sentences into FOL. 7

- Brothers are siblings.
- One's mother is one's female parent.
- Onion and Potato are vegetables.

18 a) What are the steps involved in the Knowledge representation of a FOL? Explain with an example. 7

b) Explain the concept of unification with example. 7

Module -5

19 a) How is best hypothesis selected from alternatives 7

b) Explain Decision Tree Learning Algorithm with a suitable example. 7

20 a) Explain the concept of regression with linear models 7

b) Explain in detail about reinforcement learning. 7

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