GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER–VIII (OLD) EXAMINATION – SUMMER 2019

Subject Code: 180703   **Date: 15/05/2019**

Subject Name:Artificial Intelligence

Time: 10:30 AM TO 01:00 PM   **Total Marks: 70**

Instructions:
1. Attempt all questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.

Q.1	**(a)**	Discuss seven problem characteristics to decide appropriate A.I. technique to use for problem solving.	**07**
	(b)	What is state space representation? Explain with an example.	**07**
Q.2	**(a)**	Solve following cryptarithmetic problem with appropriate strategy/steps:	**07**

$$
\begin{array}{ccccc}
 & E & A & T \\
+ & T & H & A & T \\
\hline
A & P & P & L & E \\
\end{array}
$$

	(b)	Discuss A* algorithm. Compare it with hill climbing search method.	**07**
		OR	
	(b)	Discuss Simulated Annealing search method. Compare it with hill climbing search method.	**07**
Q.3	**(a)**	Explain the algorithm of predicate logic resolution.	**07**
	(b)	Explain Semantic Net and Frame with example.	**07**
		OR	
Q.3	**(a)**	Explain non-monotonic reasoning in detail	**07**
	(b)	Describe DFS and BFS. How can they be used for searching? Give one application for which DFS or BFS can be applied for searching the solution.	**07**
Q.4	**(a)**	Discuss following with respect to Artificial Neural Network. i. Activation function ii. Weight iii. Baised input iv. axon	**07**
	(b)	Discuss Cut and Fail in Prolog.	**07**
		OR	
Q.4	**(a)**	Discuss various features of Hopfield network.	**07**
	(b)	Write a Prolog program to i. Merge two lists. ii. To check whether the number is +ve or -ve	**07**
Q.5	**(a)**	Discuss alpha-beta pruning and its advantages over min-max method.	**07**
	(b)	Explain each step of Natural Language Processing in detail	**07**
		OR	
Q.5	**(a)**	Explain difference between forwards reasoning and backward reasoning.	**07**
	(b)	Describe the Expert System Development Procedure.	**07**

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