

Seat No.: _____

Enrolment No. _____

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 cryptarithmic problem with appropriate strategy/steps: **07**
- $$\begin{array}{rcccccc} & & & E & A & T & \\ + & & T & H & A & T & \\ \hline A & P & P & L & E & & \end{array}$$
- (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. **07**
- i. Activation function ii. Weight iii. Biased input iv. axon
- (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 **07**
- i. Merge two lists. ii. To check whether the number is +ve or -ve
- 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**
