Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER–VIII EXAMINATION – SUMMER 2016

Subject Code:180703 **Date:16/05/2016**

Subject Name:Artificial Intelligence (Department Elective - II)

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)**	Explain the State Space with the use of 8 Puzzle Problem.	**07**
	(b)	Consider the following axioms: 1. Anyone whom Mary loves is a football star. 2. Any student who does not pass does not play. 3. John is a student. 4. Any student who does not study does not pass. 5. Anyone who does not play is not a football star. Prove using resolution process that "If John does not study, then Mary does not love John".	**07**
Q.2	**(a)**	Explain A* algorithm in detail.	**07**
	(b)	Solve The following Crypt arithmetic problem: C R O S S + R O A D S ---------- D E N G E R	**07**
		OR	
	(b)	Solve The following Crypt arithmetic problem: B A S E + B A L L ---------- G A M E S	**07**
Q.3	**(a)**	Given an example of a problem for which breadth-first search would work better than depth-first search.	**07**
	(b)	Explain the Forward and Backward Reasoning.	**07**
		OR	
Q.3	**(a)**	What is Hill Climbing? Explain Simple Hill Climbing and Steepest- Ascent Hill Climbing.	**07**
	(b)	Explain the Nonmonotonic reasoning.	**07**
Q.4	**(a)**	Explain the different issues in Knowledge representation.	**07**
	(b)	Explain Semantic Net and Frame with example.	**07**
		OR	
Q.4	**(a)**	Explain steps of Natural Language Processing.	**07**
	(b)	Write a short note on: Hopfield Networks.	**07**
Q.5	**(a)**	What is an expert system? Explain Architecture of an Expert system.	**07**
	(b)	Write a prolog program to find maximum number from a list.	**07**
		OR	

Q.5	**(a)**	Write a prolog program to find sum of all the numbers of a list.	**07**
	(b)	Solve Travelling Salesman Problem using any AI technique.	**07**

****