Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER–VIII (NEW) EXAMINATION – WINTER 2017

Subject Code: 2180703 Date: 02/11/2017

Subject Name: Artificial Intelligence

Time:02:30 PM TO 05:00 PM Total Marks: 70

Instructions:

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

			MARKS
Q.1	**(a)**	Describe different heuristics for the Blocks world problem.	**03**
	(b)	Discuss Cut and Fail in Prolog.	**04**
	(c)	Discuss with examples: AI Problem Characteristic.	**07**
Q.2	**(a)**	Discuss : Turing Test.	**03**
	(b)	Explain Best First Search method.	**04**
	(c)	What is wrong with the following arguments? • Men are widely distributed over the earth • Socrates is a man. • Therefore, Socrates is widely distributed over the earth. How should the facts represented by these sentences be represented in logic so that this problem does not arise?	**07**
		OR	
	(c)	Consider the following sentences: • Raj likes all kinds of food. • Apples are food. • Anything anyone eats and isn't killed by is food. • Sachin eats peanuts and is still alive. • Vinod eats everything Sachin eats. Now, attempt following: i. Translate these sentences into formulas in predicate logic ii. Use resolution to answer the question, "What food does Vinod eat?"	**07**
Q.3	**(a)**	Discuss limitations of Hill climbing search method.	**03**
	(b)	Explain non monotonic reasoning.	**04**
	(c)	Explain difference between forwards reasoning and backward reasoning.	**07**
		OR	
Q.3	**(a)**	Discuss steepest ascent hill climbing.	**03**
	(b)	Discuss various issues in design of search program.	**04**
	(c)	Define Frames. Draw Semantic Net for following statements. a) Every kid likes candy. b) Every school going kid likes candy.	**07**
Q.4	**(a)**	Discuss Bay's theorem.	**03**
	(b)	Discuss Simulated Annealing method of search.	**04**
	(c)	Explain alpha-beta cut off search with an example. State a case when to do alpha pruning.	**07**
		OR	
Q.4	**(a)**	Discuss Min-Max search method.	**03**
	(b)	Compare Fuzzy Vs Crisp logic and their membership function.	**04**
	(c)	Explain steps of Natural Language Processing	**07**
Q.5	**(a)**	What us Hopfield network?	**03**

	(b)	Write a prolog program to compute factorial of a given number.	**04**
	(c)	What is state space representation of a problem? Show the state space of the 8 puzzle problem.	**07**

OR

Q.5	**(a)**	Discuss algorithm for perceptron learning.	**03**
	(b)	Write a prolog program to find the sum of first N natural numbers.	**04**
	(c)	Discuss Iterative Deepening Search. Also give one example to explain.	**07**

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