

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 is 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**
