

GUJARAT TECHNOLOGICAL UNIVERSITY
B.E. - SEMESTER – VIII EXAMINATION – OCTOBER 2012

Subject code: 180703**Date: 25/10/2012****Subject Name: Artificial Intelligence (Department Elective II)****Time: 02.30pm - 05.00pm****Total Marks: 70****Instructions:**

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

- Q.1** (a) What is Intelligence ? Discuss types of problems requiring Intelligence to solve it. Define AI. **05**
 (b) Solve Water-Jug Problem using Production Rule System. **09**
- Q.2** (a) Explain & Compare DFS & BFS search algorithm. **07**
 (b) Explain A* algorithm. **07**
- OR**
- (b) Explain Steepest ascent Hill climbing algorithm. **07**
- Q.3** (a) Consider the following sentences and Answer a,b,c given below: **09**
 1. Rama likes all kinds of vegetarian food.
 2. Oranges are food.
 3. Mutton is food.
 4. Anything anyone eats and is not killed by is food.
 5. Likex eats peanuts and is still alive.
 6. Lovex eats everything Likex eats.
- (a) Translate these sentences into formulas in Predicate Logic.
 (b) Prove that Rama likes peanuts using Backward Chaining.
 (c) Prove Rama likes peanuts using Resolution.
- (b) Explain Inference Rules in Propositional Calculus. **05**
- OR**
- Q.3** (a) Explain mean-end analysis approach to solve AI problems. **07**
 (b) What is Expert System? Explain it's Architecture, Features & applications in brief. **07**
- Q.4** (a) Solve 8 Puzzle problem by any AI Technique. **07**
 (b) Explain Artificial Neural Network in brief. **07**
- OR**
- Q.4** (a) Explain Minmax procedure for game playing with any example. **07**
 (b) What is Natural Language Processing? Explain each step of NLP. **07**
- Q.5** (a) Explain CUT, FAIL & REPEAT predicates in PROLOG. **07**
 (b) Write a Prolog program to solve Tower of Hanoi Problem. **07**
- OR**
- Q.5** (a) Write a prolog program to count vowels in a list of characters. **07**
 (b) Write a prolog program to find the sum of elements of a List. **07**
