

GUJARAT TECHNOLOGICAL UNIVERSITY**M. E. - SEMESTER – II • EXAMINATION – SUMMER • 2014****Subject code: 1710410****Date: 25-06-2014****Subject Name: Introduction to Artificial Intelligence****Time: 02:30 pm - 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.

Q.1 (a) What is Hill-climbing search? What are the variants of Hill-climbing? What are the problems faced by hill-climbing search? **07**

(b) Explain the Breadth-first search technique with an appropriate example. **07**

Q.2 (a) List and explain the advantages of Best-first-search. What is Recursive best-first Search? Explain. **07**

(b) Show the partial state space for Travelling salesman problem using breadth first search and depth first search. **07**

OR

(b) Explain how AND-OR graph differs from OR graph? Explain the same with an appropriate example. **07**

Q.3 (a) Solve given crypt arithmetic problem using constraint satisfaction. **07**

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(b) Assume the following facts. **07**

1. Khushi only likes easy courses.
2. Engineering courses are hard.
3. All the courses of MBA are easy.
4. HRM is a course associated with MBA.

Use resolution to answer the question "What course would Khushi like?"

OR

Q.3 (a) Explain the architecture of Neural network. Also explain the application areas of Neural network. **07**

(b) What is an Expert System? Explain its architecture and characteristic. **07**

Q.4 (a) What is defuzzification? Explain any three defuzzification methods with suitable example. **07**

(b) Make a state space representation of the following problems: **07**

- (1) Monkey Banana problem (2) Traveling Salesman Problem

OR

Q.4 (a) Explain briefly simulated annealing search. **07**

(b) What is a game? Explain the minmax algorithm in detail. **07**

Q.5 (a) List the differences for the following: **07**

- (a) Linearly separable and non-separable problems
- (b) Supervised and unsupervised learning
- (c) Feed forward and feedback networks

(b) Explain the working mechanism of alpha beta pruning algorithm along with its procedure. **07**

OR

Q.5 (a) Explain A* search algorithm. **07**

(b) Explain Back propagation Training Algorithm. **07**
