Seat No.: _____ Enrolment No._____

# GUJARAT TECHNOLOGICAL UNIVERSITY

**M. E. - SEMESTER – III • EXAMINATION – SUMMER • 2013**

**Subject code: 730802** **Date: 15-05-2013**

**Subject Name: Artificial Intelligence**

**Time: 10.30 am – 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 control strategies for production system. | **07** |
| | **(b)** | For each of the following type of problem try to describe a good heuristic function.<br>(i) Blocks world problem.<br>(ii) Theorem proving.<br>(iii) Missionaries & cannibals. | **07** |
| **Q.2** | **(a)** | Write AO* algorithm. | **07** |
| | **(b)** | Explain constraint satisfaction problem with example. | **07** |
| | | **OR** | |
| | **(b)** | Explain means ends analysis algorithm. | **07** |
| **Q.3** | **(a)** | Explain semantic nets. | **07** |
| | **(b)** | Explain Resolution algorithm. | **07** |
| | | **OR** | |
| **Q.3** | **(a)** | Explain different knowledge representation approaches. | **07** |
| | **(b)** | Explain MINIMAX search procedure. | **07** |
| **Q.4** | **(a)** | Explain Winston learning program. | **07** |
| | **(b)** | Explain basic perceptron model. | **07** |
| | | **OR** | |
| **Q.4** | **(a)** | Explain backpropagation algorithm. | **07** |
| **Q.4** | **(b)** | Write applications of neural networks. | **07** |
| **Q.5** | **(a)** | Explain fuzzy set, fuzzy membership function & fuzzy set operations. | **07** |
| | **(b)** | Explain following terms in GA.<br>Reproduction, crossover & mutation. | **07** |
| | | **OR** | |
| **Q.5** | **(a)** | Explain expert system architecture. | **07** |
| | **(b)** | Write steps to develop an expert system. | **07** |

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