Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

M. E. - SEMESTER – II • EXAMINATION – WINTER • 2014

Subject code: 1710410 **Date: 08-12-2014**

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)**	Write a short note on i)Fuzzy logic ii) Forward Vs Backward reasoning iii) Bayes Network	**09**
	(b)	State PSAT problem	**02**
	(c)	Define production system. State the requirements of a good control strategy	**03**
Q.2	**(a)**	i) Define the terms: 1) State space 2) Heuristic search 3) Horn clause ii) Analyze the following the following problems with respect to seven problem characteristics 1) 8 Puzzle 2) Tower of Hanoi	**03** **04**
	(b)	Explain best first search with suitable example. What happens when hô underestimates or hô overestimates h in case of A* algorithm.	**07**
		OR	
	(b)	Explain with example problem reduction algorithm. What is the limitation of this algorithm?	**07**
Q.3	**(a)**	What are the issues in two payer games? Explain how minimax search procedure helps to solve two player games.	**07**
	(b)	Explain how mans ends analysis algorithm works	**07**
		OR	
Q.3	**(a)**	Explain alpha beta pruning done over minimax search.	**07**
	(b)	Explain genetic programming process.	**07**
Q.4	**(a)**	Explain commonsense knowledge briefly. What is its importance? What are the difficulties for its representation	**07**
	(b)	Explain briefly the steps to convert given wff into clause form	**07**
		OR	
Q.4	**(a)**	Write unification algorithm	**07**
Q.4	**(b)**	Consider following facts: • John likes all kinds of food. • Apples are food. • Chicken is food • Anything anyone eats and isnôt killed by is food. • Bill eats peanuts and is still alive. • Sue eats everything Bill eats. Use resolution to prove, "John likes peanuts".	**07**
Q.5	**(a)**	What is perceptron? Explain its expression and working briefly. What is meant by a linearly-separable problem?	**07**
	(b)	What are the components of a typical expert system? Explain.	**07**
		OR	
Q.5	**(a)**	Explain the back-propagation algorithm and explain its use.	**07**
	(b)	Explain the nonmonotonic reasoning.	**07**