Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

ME – SEMESTER-1 (NEW) EXAMINATION – WINTER 2016

Subject Code: 2710212 **Date:06/01/2017**

Subject Name: Artificial Intelligence

Time: 2:30 pm to 5:00 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 how problems can be represented in AI.	**07**
	(b)	Explain depth-first search technique along with its algorithm. What are the advantages and drawback of depth-first search?	**07**
Q.2	**(a)**	Explain heuristic function. Give heuristic function for 8-puzzle and tic-tac-toe problem.	**07**
	(b)	Differentiate between hill-climbing and best-first algorithms.	**07**
		OR	
	(b)	Explain the following terms in game playing with examples. (i) Minimax (Position, Depth, Player) (ii) Deep Enough (Position, Depth)	**07**
Q.3	**(a)**	How the minimax and alpha-beta prunings are done on tree? Explain with example.	**07**
	(b)	What are the different types of resolution?	**07**
		OR	
Q.3	**(a)**	Explain semantic net. Represent the following sentence in semantic net representation - "John gave the book to Marry"	**07**
	(b)	What are the factors which influence a system's ability to learn?	**07**
Q.4	**(a)**	What do you mean by probabilistic reasoning? Give an example.	**07**
	(b)	Explain how reasoning can be done using fuzzy logic.	**07**
		OR	
Q.4	**(a)**	Differentiate between forward and backward reasoning.	**07**
	(b)	Explain cross-correlation of two random processes and its significance in artificial intelligence.	**07**
Q.5	**(a)**	Name the various types of expert systems and explain any one of them in detail.	**07**
	(b)	Give structure of an expert system, explain its components.	**07**
		OR	
Q.5	**(a)**	What is neural network? Write its various applications.	**07**
	(b)	Define fuzzy set theory. Differentiate fuzzy sets with crisp sets with examples.	**07**

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