Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

ME – SEMESTER II (OLD) – • EXAMINATION – SUMMER 2016

Subject Code: 1710410 **Date:21/05/2016**

Subject Name: Introduction to Artificial Intelligence

Time:10:30 am to 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.**

Q1 (a) Consider following facts: **07**

- Harry likes all kinds of food.
- Oranges are food.
- Chicken is food
- Anything anyone eats and isn't killed by is food.
- Tom eats peanuts and is still alive.
- Eenna eats everything Tom eats.

Use resolution to prove, "Harry likes peanuts".

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

Q2 (a) What is Artificial Intelligence? What can AI systems do? What can AI systems cannot do yet? **07**

(b) What is Hill-climbing search? What are the variants of Hill-climbing? What are the problems faced by hill-climbing search? **07**

OR

(b) Explain Best-first-search with its advantages. What is Recursive best-first Search? **07**

Q3 (a) What is fuzzy set? Explain membership function and defuzzification methods **07**

(b) Make a state space representation of the following problems **07**
(1) Monkey Banana problem
(2) Traveling Salesman Problem

OR

Q3 (a) How AND-OR graph differs from OR graph? Explain with suitable example. **07**

(b) Define following terms with respect to GA: **07**
Initial population, Population size, Chromosome, Crossover, Mutation, Reproduction, Fitness function.

Q4 (a) Explain Iterative Deepening with suitable example. What are its advantages over other uninformed search methods? **07**

(b) What is simulated annealing? Write an algorithm for simulated annealing. **07**

OR

Q4	**(a)**	Explain architecture and characteristics of Expert System.	**07**
	(b)	Explain the architecture of Neural Network. Also explain the application areas of Neural Network.	**07**
Q5	**(a)**	Explain A* search algorithm.	**07**
	(b)	What is a game? Explain the minmax algorithm in detail.	**07**

OR

Q5	**(a)**	Differentiate (1) Feed forward and feedback networks (2) Linearly separable and non-separable problems (3) Supervised and unsupervised learning	**07**
	(b)	Explain Production system and its different categories with example.	**07**

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