GUJARAT TECHNOLOGICAL UNIVERSITY
ME - SEMESTER– 1 (NEW) • EXAMINATION – SUMMER - 2022

Subject Code:3710721   **Date: 28 Jul 2022**
Subject Name:AI Techniques
Time:02:30 PM TO 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)**	Define soft and hard computing systems? Briefly discuss the advantages of AI.	**07**
	(b)	Explain any two selection methods in GA.	**07**
Q.2	**(a)**	Explain basic Neural Network architecture and working with example.	**07**
	(b)	Discuss in brief about the evolution of ANN, Fuzzy and GA.	**07**
		OR	
	(b)	Explain the GA's Application for the maintenance schedule of power transmission network.	**07**
Q.3	**(a)**	Explain (1) α -cut (2) Linguistic variable (3) Membership Function (4) Fuzzy singleton (5) Fuzzification (6) Cross-over (7) Mutation.	**07**
	(b)	Explain single-layer and multi-layer feed forward networks in ANN.	**07**
		OR	
Q.3	**(a)**	Explain architecture of Back propagation Network.	**07**
	(b)	Explain basic Fuzzy set operators and properties of Fuzzy set.	**07**
Q.4	**(a)**	Differentiate between Crisp logic and Fuzzy logic. Explain Fuzzy Neural Network approach with suitable diagram.	**07**
	(b)	State the working principal of GA. Discuss different types of cross over methods.	**07**
		OR	
Q.4	**(a)**	Write short note on Schema Theorem and discuss the relationship between schema and chromosome?	**07**
	(b)	Define fuzzification and defuzzification. Explain any defuzzification method.	**07**
Q.5	**(a)**	Explain the following genetic representations with appropriate illustrations. (a) Octal (b) Binary (c) Hexadecimal	**07**
	(b)	Discuss the application of AI techniques for load balancing of three phase distribution system?	**07**
		OR	
Q.5	**(a)**	How neural network can be useful for dealing the voltage stability issue?	**07**
	(b)	Suggest neural network-based design for power system security assessment.	**07**

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