## GUJARAT TECHNOLOGICAL UNIVERSITY

ME – SEMESTER II– EXAMINATION – WINTER - 2016			
Subject Code: 2720719 Date: 21/11/2			16
Subject Name: Artificial Intelligent Application to Power System			
Time: 2:30 pm to 5:00 pmTotal Marks: 70			70
Instructions:			
	1. 2.	Attempt all questions. Make suitable assumptions wherever necessary.	
	3.	Figures to the right indicate full marks	
Q.1	(a)	Define following terms: (1) α -cut (2) Linguistic variable (3) Membership Function (4) Fuzzy singleton (5) Fuzzification (6) Cross-over (7) Mutation	07
	<b>(b)</b>	Explain difference between Artificial Intelligence and Human intelligence.	07
Q.2	<b>(a)</b>	What are the evolution steps of Genetic Algorithm? Draw Flowchart.	07
	<b>(b)</b>	What is ANN? Discuss important features of ANN.	07
		OR	
	(b)	What is de-fuzzification? Why it is required in Fuzzy Systems? Explain various methods of de-fuzzification.	07
Q.3	(a) (b)	<ul><li>Explain Fuzzy IF-THEN rule along with fuzzy inference system with example.</li><li>Explain the following genetic representations with appropriate illustrations.</li><li>(a) Octal (b) Binary (c) Hexadecimal.</li></ul>	07 07
		OR	
Q.3	(a) (b)	Explain feed forward structure in detail with suitable diagrams. State membership functions used with fuzzy logic. Write mathematical equations with suitable diagrams.	07 07
Q.4	<b>(a)</b>	Compare GA and other traditional methods for optimization.	07
•	<b>(b)</b>	Suggest neural network based design for power system security assessment.	07
0.4		OR	0.
Q.4	(a)	How Fuzzy logic can be useful for load balancing of three phase electric power distribution system?	07
	<b>(b)</b>	Discuss the factors affecting the training time in the (supervised) training of the ANN.	07
Q.5	(a) (b)	State selection methods used with genetic algorithm? Explain any one in detail. Which AI method is best suitable for solving problems of condition monitoring? Justify.	07 07
0.5	$(\cdot)$	OR	07
Q.5	(a) (b)	Differentiate between fuzzy and crisp logic. Also explain Fuzzy operators like Union, Intersection and complement with corresponding examples.	07 07

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