Seat No.: _____ Enrolment No.

GUJARAT TECHNOLOGICAL UNIVERSITY

BE- SEMESTER–VII (NEW) EXAMINATION – WINTER 2020

Subject Code:2172009 **Date:28/01/2021**

Subject Name:Soft Computing Applications

Time:10:30 AM TO 12:30 PM **Total Marks: 56**

Instructions:

1. **Attempt any FOUR questions out of EIGHT questions.**
2. **Make suitable assumptions wherever necessary.**
3. **Figures to the right indicate full marks.**

			MARKS
Q.1	**(a)**	With the suitable example define & explain the supervised learning method.	**03**
	(b)	With the suitable example define & explain the unsupervised and learning method.	**04**
	(c)	Define Soft Computing. Explain its importance. How is Soft Computing different from Hard Computing?	**07**
Q.2	**(a)**	List advantages of Mamdani Method.	**03**
	(b)	List advantages of Sugeno Method.	**04**
	(c)	State and explain various methods of de-fuzzification.	**07**
Q.3	**(a)**	Define uncertainty and vagueness. Explain concept of fuzziness and membership function.	**03**
	(b)	Differentiate between classical relations vs Fuzzy relation.	**04**
	(c)	Explain Noise cancellation using neural networks.	**07**
Q.4	**(a)**	Define the Cartesian product of two fuzzy sets with the help of an example.	**03**
	(b)	What is artificial neural network? Draw the architecture of basic neural network.	**04**
	(c)	Explain Mc Culloch and Pitt's model.	**07**
Q.5	**(a)**	Give the advantages of Neural Network.	**03**
	(b)	Discuss about the Demorgan's law for the fuzzy sets. Say whether it is similar to that of classical sets.	**04**
	(c)	Explain Applications of fuzzy logic in control & automation.	**07**
Q.6	**(a)**	Define fuzzy inference system. Draw its working diagram.	**03**
	(b)	Explain the difference between randomness and fuzziness.	**04**
	(c)	Explain Trajectory prediction using neural networks.	**07**
Q.7	**(a)**	Write short on NETTALK.	**03**
	(b)	Write short note on MEDALINE.	**04**
	(c)	Explain Fuzzy based robot navigation.	**07**
Q.8	**(a)**	Explain concept of Adaptive Resonance Theory.	**03**
	(b)	Write short note on ADALINE	**04**
	(c)	Explain neural network in robot navigation.	**07**

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