Indian Institute of Engineering Science and Technology, Shibpur

M.Tech (CST) 1st Semester Mid-term Examination, Nov. 2021

Subject: Soft Computing-open Elective   Code: CS5161

Full Marks: 30   Time: 45 minutes

Answer any three questions

1. (a) Say, **linguistic variable**: "Age"; How do you represent values of "Age" using three fuzzy variables? Draw corresponding membership curve. Assume universe of discourse of "Age" in years and the range [20 – 90]. Define Generalized Modus ponen and tollens.
                                                                                      2+6+2

2. What do you mean by Approximate Reasoning in Fuzzy systems? Compare Mamdani model and Sugeno model to develop Fuzzy Inference Systems.   4+6

3. What is the limitation of single layer perceptron NN. How we can overcome the problem using Multilayer perceptron?   4+6
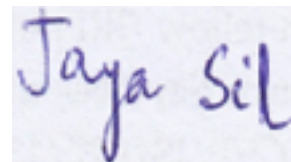
4. Write the algorithm of fuzzy c-means clustering algorithm. When do you use it instead of k-means clustering algorithm ?   7+3

5. Describe the Gradient descent method in updating the weights of Back Propagation Learning Algorithm.   10

Jaya Sil

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