

Indian Institute of Engineering Science and Technology, Shibpur

B.Tech (CST) 5th Semester Mid-Term Examination, Sep. 2023

Subject: Soft Computing-open Elective

Code: CS3123

Full Marks: 30

Time: 2 hr

Answer any two questions.

- ✓ 1. (a) What is the role of Fuzzy Inference Systems (FIS) in real life problem solving?
(b) Write different steps of FIS (No explanation is needed).
(c) What are the differences between Mamdani and Sugeno type FIS?
(d) Define Generalized Modus Ponens and Generalized Modus Tollens. 3+3+4+5
- ✓ 2. (a) Why single layer perceptron Neural Network fails to classify a two input X-OR gate?
(b) What is the role of Sigmoidal activation function to achieve convergence in error using Backpropagation algorithm?
(c) How Self organizing feature map preserves topology of the network? 4+5+6
3. (a) What are the different hyperparameters of an AutoEncoder?
(b) Give example of different fuzzy variables of a linguistic variable "SPEED".
(c) What are the salient features of Fuzzy c means clustering algorithm? 5+5+5

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(2021CSB043)

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