22002581

Reg No : ....

Name : ....

MSc DEGREE (CSS) EXAMINATION , NOVEMBER 2022

Second Semester

M.Sc. ARTIFICIAL INTELLIGENCE

CORE - AI010202 - SOFT COMPUTING

2019 Admission Onwards

0998403E

Time: 3 Hours   Weightage: 30

Part A (Short Answer Questions)

*Answer any **eight** questions.*

*Weight **1** each.*

1. Explain about Soft Computing.

2. Discuss the Evolution of Neural Network.

3. Differentiate between Adaline and Madaline.

4. Explain in detail about wavelet neural network.

5. Explain about Autoassociative memory network with its architecture.

6. Discuss about the training algorithm used in Heteroassociative Memory Network.

7. Write short note on Fuzzy set.

8. Define cardinality of classical relation.

9. Mention the properties of Lambda-Cuts for Fuzzy relation.

10. Compare first of maxima and last of maxima method in defuzzification.

(8×1=8 weightage)

Part B (Short Essay/Problems)

*Answer any **six** questions.*

*Weight **2** each.*

11. Implement AND function using McCulloch-Pitts neuron with binary data.

12. Explain about the activation function and learning rule used in Perceptron Neural net. Also explain the importance of threshold in Perceptron network.

13. Explain about Radial Basis Function network training process with algorithm and flowchart.

14. (a) Find the Weight matrix in bipolar form for the bidirectional associative memory using outer products rule for the input-output vector pairs: s(1) = (1 0 0 0), t(1)= (1 0) s(2) = (1 0 0 1), t(2)= (1 0) s(3) = (0 1 0 0), t(3)= (0 1) s(4) = (0 1 1 0) t(4)=(0 1) b) Using the unit step function with threshold 0 as the output units activation function, test the response of the network on each of the input patterns.

15. Discuss about discrete Hopfield net and its training algorithm.

16. Differentiate between Classical relation and Fuzzy relation with example.

17. Differentiate between Neural processing and Fuzzy processing.

18. Explain about the 2 classification of Neuro-Fuzzy Hybrid system.

(6×2=12 weightage)

Part C (Essay Type Questions)

*Answer any **two** questions.*

*Weight **5** each.*

19. Discuss about the 3 basic entities of Artificial Neural Network model.

20. Explain the nets Time Delay Network, Functional link network and Tree Neural Network.

21. Explain in detail Iterative Autoassociative Memory Network with its different categories.

22. Different methods of membership value assignment in Fuzzy set.

(2×5=10 weightage)