UNIVERSITY OF ENGINEERING AND MANAGEMENT, KOLKATA

Degree: B.Tech Stream: CSE

Year: 3rd

Even Semester Term - I Examination, February - 2024

Subject Name: Professional Elective II: Soft Computing

Subject Code: PECCSE601A

Full Marks: 30 Duration: 1 Hour

Date: 27.02.2024 Time: 4 PM – 5 PM

Part - A

Attempt 5 questions

Each question carries 2 marks (2 × 5)

1. State the feature of Hard computing and soft computing.

   or

   Define soft computing with suitable example.

2. Define Bias with respect to ANN.

   or

   Define Learning rate with respect to ANN.

3. List the parameters of Gradient descent.

   or

   State the Converging criteria of Gradient descent.

4. What are the different types of Logistic Regression?

   or

   What are Bootstrap Samples and in replacement?

5. How many features need to be considering for Random Forest Algorithm?

   or

   How do we choose the value of K in KNN algorithm?

Part - B

Attempt 2 questions

Each question carries 5 marks (5 × 2)

6. Sketch the simple architecture of ANN with detailed Notations and the calculation of net input.

   or

   Sketch the architectural design of a multi-layer feedforward Neural network.

7. Define: Universal fuzzy sets, Empty fuzzy sets and Equal fuzzy sets with proper examples.

or

Discuss the idea behind fuzzy logic. How does it differ from the crisp logic? Explain with a suitable example.

Part - C

Attempt 1 question

Each question carries 10 marks (10 × 1)

8. Implement AND function using McCulloch-Pitts neuron taking binary data.

or

Find Prob (Yes/ Sunny, Weak) and Prob (No/ Sunny, Weak) from the following table:

Day	Weather	Temperature	Humidity	Wind	Play Football?
1	Sunny	Hot	High	Weak	No
2	Sunny	Hot	High	Strong	No
3	Cloudy	Hot	High	Weak	Yes
4	Rain	Mild	High	Weak	Yes
5	Rain	Cool	Normal	Weak	Yes
6	Rain	Cool	Normal	Strong	No
7	Cloudy	Cool	Normal	Strong	Yes
8	Sunny	Mild	High	Weak	No
9	Sunny	Cool	Normal	Weak	Yes
10	Rain	Mild	Normal	Weak	Yes
11	Sunny	Mild	Normal	Strong	Yes
12	Cloudy	Mild	High	Strong	Yes
13	Cloudy	Hot	Normal	Weak	Yes
14	Rain	Mild	High	Strong	No

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