

Roll No. 2182300136...

Total No. of Questions : 6]

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**EY-247**

**B.Tech. VII<sup>th</sup> Semester (New Scheme) CSE**

**Examination, 2023-24**

**Soft Computing**

**Paper - CS-702**

**Time : 3 Hours]**

**[Maximum Marks : 60**

**Note :-** Attempt all questions. All questions Carry Equal Marks.

Question 1 is compulsory. There are Internal Choices

between Ques. 2 to Ques. 6.

1. Briefly explain the following terms :

**2×5=10**

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**(1)**

**P.T.O.**

(i) Hard computing

(ii) Energy Function

(iii) Fuzzy Logic

(iv) Reproduction

(v) Attributes

2. (a) Explain Perceptron Training Algorithm for single output class. 10

(b) What is Activation function and write its importance.

OR

(a) Write three application scope of the Neural Network.

(b) Implement AND function using McCulloch-Pitts neuron (using binary representation).

3. (a) List the stages involved in training of back propagation network. 10

(b) Explain the energy function in a Hopfield network?

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(2)

OR

(a) Explain competitive learning. Also discuss examples of it.

(b) Explain multilayer feedforward neural network with a suitable example.

4. (a) State the conditions for fuzzy tolerance and fuzzy equivalence relations? 10

(b) Differentiate between Normal and subnormal fuzzy set.

OR

(a) Describe applications and structure of a fuzzy inference system?

(b) Explain the concept of fuzzy measures.

5. (a) List the stopping condition for Genetic Algorithm flow? 10

(b) Describe two methods used for Aggregation of Fuzzy Rules.

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(3)

P.T.O.

**OR**

- (a) Explain the different methods of encoding that are possible in genetic algorithm.
  - (b) Explain the features of fuzzy membership functions with proper diagrams.
6. (a) What are the five application areas of SVM? 10
- (b) What is the difference between linear and nonlinear classifiers?

**OR**

- (a) What do mean by set approximation in RST?
- (b) What is advanced soft computing techniques.

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