Hall Ticket No | | | | | | | | | | | Question Paper Code: BCS208

INSTITUTE OF AERONAUTICAL ENGINEERING

(Autonomous)

M.Tech II Semester End Examinations (Supplementary) - January, 2018

Regulation: IARE–R16

SOFT COMPUTING

(Computer Science and Engineering)

Time: 3 Hours **Max Marks: 70**

Answer ONE Question from each Unit
All Questions Carry Equal Marks
All parts of the question must be answered in one place only

UNIT – I

1. (a) How neural networks differ from conventional computing? Explain in detail. **[7M]**
   (b) For the network shown in Figure 1, calculate the net input to the output neuron. **[7M]**

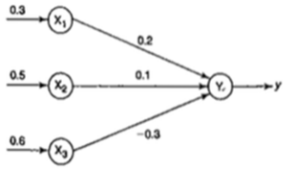

Figure 1

2. (a) Write the flowchart for the training algorithm of Hebb network or the calculation and adjustment of weights. **[7M]**
   (b) Explain the Madaline architecture consisting of ”n” units of input layer, ”m” units of adaline layer and ”1” unit of the madaline layer. **[7M]**

UNIT – II

3. (a) Explain the discrete bidirectional associative memory network architecture highlighting two layers of interaction between each other. **[7M]**
   (b) Explain the architecture of linear vector quantization with neat sketch. **[7M]**
4. (a) Write the algorithm of discrete Hopfie/d Network. **[7M]**
   (b) What is Adaptive Resonance Theory (ART) Network ? Explain different states in clustering unit of ART. **[7M]**

UNIT – III

5. (a) Explain the configuration of a pure fuzzy system. **[7M]**
   (b) What is the process of defuzzification? List and briefly discuss different methods of defuzzification. **[7M]**

6. (a) List and briefly discuss several ways to assign membership values to fuzzy variables in comparison with the probability density functions to random variables. **[7M]**

   (b) Explain different steps used in genetic algorithm to determine the fuzzy membership function. **[7M]**

UNIT – IV

7. (a) Explain the set of operations that can be performed on interval analysis of uncertain values. **[7M]**

   (b) Briefly discuss the fuzzy propositions that make the fuzzy logic differ from classical logic. **[7M]**

8. (a) Explain the algebraic properties of addition and multiplication on fuzzy numbers. **[7M]**

   (b) What is aggregation of fuzzy rules ? Explain different methods used for aggregation of fuzzy rules. **[7M]**

UNIT – V

9. (a) Give the major differences exists between genetic algorithm and conventional optimisation techniques. **[7M]**

   (b) List and briefly discuss various selection methods available in the process of section phase of genetic algorithm. **[7M]**

10. (a) Explain different parallel genetic algorithms. **[7M]**

    (b) Briefly discuss different stopping condition for genetic algorithm flow. **[7M]**