Roll No. ☐☐☐☐☐☐☐☐☐☐☐ Total No. of Pages : 02

Total No. of Questions : 18

B.Tech.(CSE) (2011 Onwards E-III) (Sem.–7,8)
SOFT COMPUTING
Subject Code : BTCS-911
M.Code : 71903

Time : 3 Hrs. Max. Marks : 60

INSTRUCTION TO CANDIDATES :
1. **SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.**
2. **SECTION-B contains FIVE questions carrying FIVE marks each and students have to attempt any FOUR questions.**
3. **SECTION-C contains THREE questions carrying TEN marks each and students have to attempt any TWO questions.**

SECTION-A

Answer briefly :

1) Differentiate between hard computing and soft computing.

2) What is the importance of threshold in perceptron network?

3) Discuss the applications of using counter-propagation networks.

4) Define fuzzy sets.

5) What is fuzzy expert system?

6) Mention the various operators involved in genetic algorithm.

7) What is learning in neural networks?

8) Describe feedback networks.

9) What do you mean by reinforcement learning? Explain.

10) Explain fitness function.

SECTION-B

11) What is the activation function used in Radial Basis Function network? Explain.

12) State the merits and demerits of Kohonen self-organizing feature maps.

13) What is cross over and mutation? Explain in detail.

14) Describe particle swarm optimization.

15) Define membership function and state its importance in fuzzy logic.

SECTION-C

16) Implement OR function with binary inputs and bipolar targets using perceptron training algorithm upto 3 epochs.

17) a. Define expert system. How is a fuzzy expert system formed? State its importance.

   b. Develop an Fuzzy Inference system (FIS) model for controlling temperature in an air conditioner.

18) Write a short note on the following :

   a. Types of genetic algorithms

   b. Fuzzy decision making

   c. Swarm Intelligence

   d. Applications of genetic algorithms

NOTE : Disclosure of Identity by writing Mobile No. or Making of passing request on any page of Answer Sheet will lead to UMC against the Student.