

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.