Subject Code: RCS071

PAPER ID-310065

Roll No: | | | | | | | | | | | | | |

B. TECH.
(SEM-VII) THEORY EXAMINATION 2020-21
APPLICATION TO SOFT COMPUTING

Time: 3 Hours *Total Marks: 70*

Note: 1. Attempt all Sections. If require any missing data; then choose suitably.

SECTION A

1. Attempt *all* questions in brief. 2 x 7 = 14

a.	Write the applications of Neuro Fuzzy System.
b.	What are the properties of fuzzy sets?
c.	Write the applications of Artificial Neural Networks.
d.	Draw a flowchart of implementation steps of genetic algorithm (GA).
e.	Outline the differences between hard computing and soft computing.
f.	What is fuzzification?
g.	Write the applications of genetic algorithm.

SECTION B

2. Attempt any *three* of the following: 7 x 3 = 21

a.	Explain in detail the architecture of Mc Culloch – Pitts neuron model and also realize 3-input NAND gate, NOR gate using the above neuron model.
b.	Explain about the training algorithms for pattern association.
c.	Explain about the cardinalities in fuzzy sets.
d.	Explain air conditioner control using fuzzy logic.
e.	Define the terms chromosome, fitness function, crossover and mutation as used in genetic algorithms.

SECTION C

3. Attempt any *one* part of the following: 7 x 1 = 7

(a)	Explain about the classification taxonomy of artificial neural networks.
(b)	Explain about the Perceptron training algorithms

4. Attempt any *one* part of the following: 7 x 1 = 7

(a)	Explain the architectural details and algorithm of "ADALINE" model.
(b)	Explain about back propagation learning.

5. Attempt any *one* part of the following: 7 x 1 = 7

(a)	What is meant by membership function? Explain in detail various membership functions of fuzzy logic systems.
(b)	Explain decision making using fuzzy composition operations.

6. Attempt any *one* part of the following: 7 x 1 = 7

(a)	What are the basic components of a fuzzy logic system? Explain each of them in detail.
(b)	Explain applications of fuzzy logic in control system with one example.

7. Attempt any *one* part of the following: 7 x 1 = 7

(a)	Explain in detail about various operators of genetic algorithm and also explain genetic algorithm evaluation procedure.
(b)	A genetic algorithm is to be used to evolve a binary string of length n containing only 1s. The initial population is a randomly generated set of binary strings of length n. Give a suitable fitness function for this problem.