GIET UNIVERSITY, GUNUPUR – 765022
M. Tech (Second Semester Examinations) – October' 2021
MPCCS2020 – SOFT COMPUTING
(C.S.E)

Time: 2 hrs   Maximum: 50 Marks

(The figures in the right hand margin indicate marks)
PART – A

Q.1. Answer *ALL* questions   (2 x 10 = 20)

a. Differentiate between crisp set and fuzzy set?

b. Explain Delta Rule in brief.

c. What is the cardinality of fuzzy sets? Whether power set can be formed for a fuzzy set?

d. What do you understand by Perceptrons?

e. Write down some of the applications of Genetic Algorithm.

f. What is Recurrent neural networks?

g. How Encoding is used in genetic algorithms?

h. What are the limitations of genetic algorithm?

i. What do you mean by Simulated Annealing?

j. Define random search.

PART – B   **(6 x 5 = 30 Marks)**

Answer *ANY FIVE* questions   Marks

2. Describe Back Propagation Networks? Draw and explain the architecture of Back Propagation Networks.   (6)

3. Two fuzzy relations are given as   (6)

$$R_1 = \begin{bmatrix} 0.3 & 0.1 & 0.7 & 0.3 \\ 0.0 & 1.0 & 0.3 & 0.2 \end{bmatrix}$$

$$R_2 = \begin{bmatrix} 1.0 & 0.0 & 1.0 \\ 0.0 & 0.6 & 0.4 \\ 0.7 & 0.9 & 0.6 \\ 0.1 & 0.0 & 0.2 \end{bmatrix}$$

Find: Max-min Composition and Max-prod Composition

4. Differentiate between Competitive Learning Networks & Kohonen Self-Organizing Networks   (6)

5. Write short notes on: (6)

   i. Learning Vector Quantization.
   ii. Hebbian Learning

6. What is meant by Genetic-Fuzzy rule based system? Explain in detail   (6)

7. Explain in details about Foundation of Genetic Algorithms. **Also** Differentiate between Genetic Algorithm and traditional optimization methods.   (6)

8. Discuss over swarm optimization techniques in details   (6)

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