PAPER ID-410528

Subject Code: KCA032

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

MCA
(SEM IV) THEORY EXAMINATION 2023-24
SOFT COMPUTING

TIME: 3 HRS **M.MARKS: 100**

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

SECTION A

1. Attempt *all* questions in brief.

a.	Define terms weight and bias.	2
b.	What is activation function?	2
c.	State the concept of Gradient descent learning.	2
d.	What is a recurrent network?	2
e.	What do you mean by the cardinality of a fuzzy set?	2
f.	Write a short note on fuzzy propositions.	2
g.	Give any two limitations of Genetic algorithm.	2
h.	Why selection operation is performed?	2
i.	Briefly explain the concept of swarm intelligence.	2
j.	What is meant by hybrid soft computing technique?	2

SECTION B

2. Attempt any *three* of the following:

a.	Discuss concept and components of an artificial neural network with the help of a diagram.	10
b.	What is a perceptron network? Explain its architecture and functioning with the help of a diagram.	10
c.	Describe various types of fuzzy membership functions.	10
d.	Discuss concept and working of Genetic programming.	10
e.	Explain properties of neuro-fuzzy hybrid systems. State the limitations of neural networks and fuzzy systems when operated individually.	10

SECTION C

3. Attempt any *one* part of the following:

a.	What do you mean by the term soft computing? Discuss any five application areas of soft computing.	10
b.	Explain any two basic neural network architectures with diagram.	10

4. Attempt any *one* part of the following:

a.	Discuss the Radial basis function network architecture and training algorithm.	10
b.	Explain architecture of Hebb network with diagram. Also write its training algorithm.	10

5. Attempt any *one* part of the following:

a.	What is an inference engine? Explain the concept of Mamdani fuzzy inference system.	10
b.	Discuss various operations over a crisp relations with example.	10

6. Attempt any *one* part of the following:

a.	What do you mean by parallel Genetic algorithm? Explain. Also discuss its types.	10
b.	Discuss any five types of crossover techniques with proper example.	10

7. Attempt any *one* part of the following:

a.	Explain in detail the concept of fuzzy genetic hybrid systems.	10
b.	Discuss application areas of hybrid soft computing systems.	10