22CMP105/18CMP05

**PSG COLLEGE OF ARTS & SCIENCE**
(AUTONOMOUS)

**MSc DEGREE EXAMINATION DECEMBER 2022**
(First Semester)

Branch – **COMPUTER SCIENCE**

**SOFT COMPUTING**

Time: Three Hours Maximum: 50 Marks

**SECTION-A (5 Marks)**
Answer **ALL** questions
**ALL** questions carry **EQUAL** marks (5 x 1 = 5)

1) The fundamental unit of network is _____
(i) brain (ii) nucleus (iii) neuron (iv) axon

2) What is the name of the network, which includes backward links from the output to the inputs as well as the hidden layers?
(i) Perceptron (ii) Self-organizing maps
(iii) Multi-layered perceptron (iv) Recurrent neural network

3) Which of the following is associated with fuzzy logic?
(i) Crisp set logic (ii) Many-valued logic
(iii) Two-valued logic (iv) Binary set logic

4) What is the name of the operator in fuzzy set theory, which is found to be linguistic in nature?
(i) Lingual Variable (ii) Fuzzy Variable
(iii) Hedges (iv) None of the above

5) Fuzzy Set theory defines fuzzy operators. Choose the fuzzy operators from the following.
(i) AND (ii) OR (iii) NOT (iv) All of the mentioned

**SECTION - B (15 Marks)**
Answer **ALL** Questions
**ALL** Questions Carry **EQUAL** Marks (5 x 3 = 15)

6) a) Summarize the features of hard computing.
OR
b) Elaborate the main function of hybrid computing.

7) a) Show the advantages of recurrent neural networks.
OR
b) Describe the basic concepts of supervised learning.

8) a) What are the classical search and optimization methods? Explain.
OR
b) Explain the representation of genetic algorithm.

9) a) Write down the evolution of fuzzy logic.
OR
b) Mention the different types of membership functions.

10) a) What are the crisp relations? Give example.
OR
b) Distinguish between the fuzzification and defuzzification .

**Cont...**

## SECTION -C (30 Marks)

Answer **ALL** questions

**ALL** questions carry **EQUAL** Marks (5 x 6 = 30)

11) a) Analysis the application of soft computing.

OR

b) Evaluate the modeling an artificial neuron.

12) a) Compare the functions of layered networks and acyclic networks.

OR

b) Illustrate the reinforcement learning in neural networks.

13) a) Discuss the fitness of a solution to genetic algorithm.

OR

b) Examine the limitation and application of genetic algorithm.

14) a) Outline the geometric representation of fuzzy sets.

OR

b) Integrate the various operations on fuzzy sets.

15) a) Determine the application area of fuzzy logic.

OR

b) Draw and explain the concept of fuzzy inference systems.

Z-Z-Z END