(6 pages)

Reg. No. : ....

Code No. : 6448   **Sub. Code : ZCSM 32**

M.Sc. (CBCS) DEGREE EXAMINATION,
NOVEMBER 2022.

Third Semester

Computer Science

SOFT COMPUTING

(For those who joined in July 2021 onwards)

Time : Three hours   Maximum : 75 marks

PART A — (10 × 1 = 10 marks)

Answer ALL questions.

Choose the correct answer :

1. Neurons also known as ——————

    (a) Neurodes

    (b) Processing elements

    (c) Nodes

    (d) All the above

2. Which of the following models are utilized for learning?

    (a) Neural networks

    (b) Decision trees

    (c) Propositional and FOL rules

    (d) All of the above

3. —————— is never assured of finding global minimum as in the simple layer delta rulecase.

    (a) Back propagation   (b) Front Propagation

    (c) Propagation   (d) None of the above

4. BAM stands for ——————

    (a) Bidirectional Associative Memory

    (b) Associative Memory

    (c) Biconventional Associative Memory

    (d) None of these

5. Fuzzy relation is a fuzzy set defined on the Cartesian product of

    (a) single set   (b) crisp set

    (c) union set   (d) intersection set

6. _____ truth values are multivalued.

   (a) Crisp logic   (b) Boolean logic

   (c) Fuzzy logic   (d) None of these

7. In propositional logic, _____ widely used for inferring facts.

   (a) Pones   (b) Modus

   (c) Modus ponens   (d) Pons

8. Fuzzy logic propositions are also quantified by

   (a) Fuzzy   (b) Fuzzy qualifiers

   (c) Fuzzy quantifiers   (d) None of these

9. _____ is the first operator applied on population.

   (a) Reproduction   (b) Recombination

   (c) Mutation   (d) None of these

10. The _____ is referred the proportion of individuals in the population which are replaced in each generation.

   (a) gap

   (b) generation gap

   (c) generation interval

   (d) interval

PART B — (5 × 5 = 25 marks)

Answer ALL questions.

Choosing either (a) or (b), each answer should not exceed 250 words.

11. (a) Classify the applications of soft computing.

Or

   (b) Explain the linear separable in Neural Network.

12. (a) Differentiate between supervised and unsupervised learning.

Or

   (b) Draw and explain the basic mode of madaline network.

13. (a) Distinguish between fuzzy set and crisp set.

Or

   (b) Categorize the different types of defuzzification with suitable example.

14. (a) Explain the role of fuzzy arithmetic in soft computing.

Or

   (b) Classify the types of fuzzy measures.

15. (a) State the operators of Genetic Algorithm.

Or

(b) Write down the steps for genetic Algorithm.

PART C — (5 × 8 = 40 marks)

Answer ALL questions.

Choosing either (a) or (b) Each answer should not exceed 600 words.

16. (a) Construct the McCulloch pitts neuron in soft computing.

Or

(b) Draw a biological Neural Network and explain the parts.

17. (a) Explain the working of back propagation network with neat diagram.

Or

(b) Demonstrate the counter propagation network learning algorithm.

18. (a) Categorize the different fuzzy relation operations.

Or

(b) Explain the fuzzy membership function with neat diagram.

19. (a) Present the framework of fuzzy inference system and explain.

Or

(b) Discuss the methods of aggregation of fuzzy rules.

20. (a) Discuss the various types of crossover and mutation techniques involved in Genetic Algorithm.

Or

(b) Classify the various applications of Genetic Algorithm.

——————