23CAU635

PSG COLLEGE OF ARTS & SCIENCE
(AUTONOMOUS)

BCA DEGREE EXAMINATION MAY 2025
(Sixth Semester)

Branch – COMPUTER APPLICATIONS

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. Which of the following is a characteristic of intelligent systems?
   (a) Ability to learn from data (b) Execution of only predefined rules
   (c) No adaptation to new environments (d) Strict rule-based processing

2. Which part of a biological neuron is responsible for receiving inputs?
   (a) Axon (b) Dendrites (c) Soma (d) Synapse

3. _____ is the primary function of Back propagation in neural networks.
   (a) Weight initialization (b) Error correction and learning
   (c) Feature extraction (d) Data normalization

4. Which type of associative memory recalls a pattern from a partial input?
   (a) Back propagation network (b) Hetero-associative memory
   (c) Feed forward neural network (d) Auto-associative memory

5. Which of the following is a selection method in Genetic Algorithms?
   (a) Tournament Selection (b) K-Nearest Neighbors
   (c) Naïve Bayes (d) Principal Component Analysis

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

6. (a) Bring out the importance of Intelligent System and give an example.
   (OR)
   (b) Explain the role of set inclusion and set equality in fuzzy logic.

7. (a) Describe the basic model of a biological neuron.
   (OR)
   (b) Outline on the Application of Neural Networks.

8. (a) Explain the difference between local minima and global minima in back propagation networks.
   (OR)
   (b) Narrate the applications of Radial Basis Function (RBF) networks.

9. (a) Compare Auto-associative and Hetero-associative memory.
   (OR)
   (b) Sketch on Optimization. Explain with its methods.

10. (a) How is constraint handling performed in Genetic Algorithms?
    (OR)
    (b) Explain the working cycle of a genetic algorithm.

Cont...

SECTION -C (30 Marks)

Answer **ALL** questions

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

11. (a) Discover the different types of fuzzy logic operations with examples.

(OR)

(b) Discuss the fundamentals of soft computing and its applications.

12. (a) Examine the architecture and working of Perceptron Networks.

(OR)

(b) Highlight on the architectures of Artificial Neural Networks (ANN).

13. (a) Analyze on backpropagation algorithm with a suitable example.

(OR)

(b) Discuss the merits and demerits of the Backpropagation Network.

14. (a) Elucidate the working of Bidirectional associative memory with a suitable example.

(OR)

(b) Enumerate on the Applications of Associative memory.

15. (a) Infer on the concepts of Simulated Annealing and Particle Swarm Optimization.

(OR)

(b) Compare Binary Coded Genetic Algorithm with Red Coded Genetic Algorithm.

Z-Z-Z END