

(6 pages)

Reg. No. :

Code No. : 8898

Sub. Code : KCSM 33

M.Sc. (CBCS) DEGREE EXAMINATION,
NOVEMBER 2017.

Third Semester

Computer Science

SOFT COMPUTING

(For those who joined in July 2016 – 2017)

Time : Three hours

Maximum : 75 marks

PART A — (10 × 1 = 10 marks)

Answer ALL questions.

Choose the correct answer :

1. The Artificial Neural network elements are called

- (a) Neurons
- (b) Artificial Neural Network
- (c) Node
- (d) None

2. Dendrites are referred to as

- (a) Neuron
- (b) weights
- (c) Net input
- (d) output

3. When the training input and the target output are same then it is called as

- (a) Autoassociative Memory Network
- (b) Hetroassociative Memory Network
- (c) Bidirectional Associative Network
- (d) None

4. Discrete Hopfield Network accepts the two values input

- (a) Binary
- (b) Bipolar
- (c) Pattern
- (d) none

5. Fuzzy logic is a mathematical tool for dealing with

- (a) certainty
- (b) uncertainty
- (c) knowledge decision making
- (d) none

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6. The rule $A \cup B = A; A \cap A =$ satisfies which property.

- (a) Commutativity
- (b) Associativity
- (c) Transitivity
- (d) Idempotency

7. The process of transforming a crisp set to a fuzzy set or a fuzzy set to a fuzzier set

- (a) Fuzzification.
- (b) Intuition
- (c) Inference
- (d) Genetic Algorithm

8. FIS stands for

- (a) Fuzzy Inference Systems
- (b) Fuzzy Information
- (c) Fuzzy Idle System
- (d) Inductive system

9. Genetic Algorithms are

- (a) Rand Search
- (b) Hill Climbing
- (c) Heuristic search
- (d) None

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10. Deep Blue is an

- (a) Computer Chess
- (b) Medical Expert
- (c) Ore detector
- (d) None

PART B — (5 × 5 = 25 marks)

Answer ALL questions choosing either (a) or (b).

Each answer should not exceed 250 words.

11. (a) Discuss Artificial Neural network.

Or

(b) Explain Linear separability.

12. (a) Discuss Autoassociative Memory Network.

Or

(b) Explain the architecture of ARTS Algorithm.

13. (a) How the Fuzzy system is configured?

Or

(b) Explain Angular Fuzzy Systems.

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14. (a) Explain the concept of Fuzzy Arithmetic.

Or

- (b) Explain the Architecture and operation of Fuzzy Logic System.

15. (a) Explain the Biological Background of Genetic Algorithm.

Or

- (b) Write notes on application of 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) Explain Basic Models of Artificial Neural Network.

Or

- (b) Explain the Training and Testing process of Back Propagation Network.

17. (a) Explain Adaline Linear Neuron.

Or

- (b) Explain the Training Algorithm for Pattern Association.

18. (a) Explain Fuzzy Relation in Detail.

Or

- (b) Given the two fuzzy sets

$$\underline{B}_1 = \left\{ \frac{1}{1.0} + \frac{0.75}{1.5} + \frac{0.3}{2.0} + \frac{0.15}{2.5} + \frac{0}{3.0} \right\}$$

$$\underline{B}_2 = \left\{ \frac{1}{1.0} + \frac{0.6}{1.5} + \frac{0.2}{2.0} + \frac{0.1}{2.5} + \frac{0}{3.0} \right\}$$

Find the following

(i) $\underline{B}_1 \cup \underline{B}_2$

(ii) $\underline{B}_1 \cap \underline{B}_2$

(iii) $\overline{\underline{B}_1 \cup \underline{B}_2}$

(iv) $\overline{\underline{B}_1 \cap \underline{B}_2}$

19. (a) Explain Fuzzy Measures.

Or

- (b) Explain Fuzzy Logic Control Systems.

20. (a) Explain the concept of simple Genetic Algorithm.

Or

- (b) Explain the classification of Parallel Genetic Algorithm.

