

(6 pages)

Reg. No. :

Code No.: 6066

Sub. Code: ZCAE 23

M.C.A. (CBCS) DEGREE EXAMINATION,
APRIL 2023.

Second Semester

Computer Application – Core

Elective – 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. Which of the following is associated with fuzzy logic?
(a) Crisp set logic (b) Many-valued logic
(c) Two-valued logic (d) Binary set logic
2. How many types of random variables are there in Fuzzy logic?
(a) 2 (b) 4
(c) 1 (d) 3

3. What is the name of the operator in fuzzy set theory, which is found to be linguistic in nature?
(a) Lingual Variable (b) Fuzzy Variable
(c) Hedges (d) None of the above
4. Uncertainty can be represented by _____.
(a) Entropy (b) Fuzzy logic
(c) Probability (d) All of the above
5. A perceptron can be defined as _____.
(a) A double layer auto-associative neural network
(b) A neural network with feedback
(c) An auto-associative neural network
(d) A single layer feed-forward neural network with pre-processing
6. Back propagation can be defined as _____.
(a) It is another name given to the curvy function in the perceptron.
(b) It is the transmission of errors back through the network to adjust the inputs.
(c) It is the transmission of error back through the network to allow weights to be adjusted so that the network can learn.
(d) None of the above

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7. Based on _____ membership function can be used to solve empirical problems.
(a) Knowledge (b) Learning
(c) Examples (d) Experience
8. A neuro software can be defined as:
(a) A powerful and easy neural network
(b) A software that is used to analyze neurons
(c) Software utilized by a neurosurgeon
(d) A software aimed to assist experts in the real world
9. What is involved in inductive learning?
(a) Inconsistent Hypothesis
(b) Consistent Hypothesis
(c) Estimated Hypothesis
(d) Irregular Hypothesis
10. Automated vehicle is an application of _____.
(a) Unsupervised learning
(b) Supervised learning
(c) Reinforcement learning
(d) Active learning

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PART B — (5 × 5 = 25 marks)

Answer ALL questions, choosing either (a) or (b).
Each answer should not exceed 250 words.

11. (a) Discuss the basic concepts of neural networks.
Or
(b) Write the principles of Hebb network.
12. (a) What is the role of Hopfield networks? Explain it.
Or
(b) Describe about the adaptive resonance theory network.
13. (a) Differentiate classical sets and fuzzy sets.
Or
(b) What are the features of membership functions?
14. (a) Define extension principle. Discuss it.
Or
(b) Write short notes on control system design.

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[P.T.O.]

15. (a) Give a brief note on basic operators in Genetic Algorithms.

Or

- (b) List out the applications of genetic algorithms.

PART C — (5 × 8 = 40 marks)

Answer ALL questions, choosing either (a) or (b)
Each answer should not exceed 600 words.

16. (a) Briefly explain McCulloch-Pitts neuron with neat diagram.

Or

- (b) State the various applications of neural network.

17. (a) Elaborate on auto associative memory network with example.

Or

- (b) Discuss fixed weight competitive nets.

18. (a) Explain Cartesian product of a relation with example.

Or

- (b) Describe about defuzzification methods.

19. (a) Compare truth values and tables in fuzzy logic.

Or

- (b) Write the architecture of FLC system in detail.

20. (a) Give a brief note on basic terminologies in Genetic Algorithms.

Or

- (b) Explain in detail about the classification of genetic algorithms.