



ONLINE ASSESSMENT, MAY/JUNE – 2020

Program: M.TECH (CSE)

Semester – II

Subject: Soft Computing

Subject Code: MTCSE2341

Max. Marks: 70

Max. Time: 2.00 Hrs

Read this before you look at the questions

1. Ensure that you have entered all the details on the answer book and confirmed to e-Invigilator/s.
2. **Using answer script for rough work is strictly prohibited**

Section – A

(Answer all questions. Each question carries 1 mark.)

Multiple Choice Questions (Tick/Mark any one answer from given options)

1. Core of soft Computing is
 - A. Fuzzy Computing, Neural Computing, Genetic Algorithms
 - B. Fuzzy Networks and Artificial Intelligence
 - C. Artificial Intelligence and Neural Science
 - D. Neural Science and Genetic Science
2. Who initiated the idea of Soft Computing
 - A. Charles Darwin
 - B. LoftiAZadeh
 - C. Rechenberg
 - D. Mc Culloch
3. Fuzzy Computing
 - A. mimics human behavior
 - B. doesn't deal with 2 valued logic
 - C. deals with information which is vague, imprecise, uncertain, ambiguous, inexact, or probabilistic
 - D. All of the above
4. Neural Computing
 - A. mimics human brain
 - B. information processing paradigm
 - C. Both (a) and (b)
 - D. None of the above
5. Genetic algorithm are part of
 - A. Evolutionary Computing
 - B. inspired by Darwin's theory about evolution - "survival of the fittest"
 - C. are adaptive heuristic search algorithm based on the evolutionary ideas of natural selection and genetics

D. All of the above

6. What are the 2 types of learning

- A. Improvised and unimprovised
- B. supervised and unsupervised
- C. Layered and unlayered
- D. None of the above

7. Supervised Learning is

- A. learning with the help of examples
- B. learning without teacher
- C. learning with the help of teacher
- D. learning with computers as supervisor

8. Unsupervised learning is

- A. learning without computers
- B. problem based learning
- C. learning from environment
- D. learning from teachers

9. Conventional Artificial Intelligence is different from soft computing is in sense

- A. Conventional Artificial Intelligence deal with predicate logic where as soft computing deal with fuzzy logic
- B. Conventional Artificial Intelligence methods are limited by symbols where as soft computing is based on empirical data
- C. Both (a) and (b)
- D. None of the above

10. In Supervised Learning

- A. classes are not predefined
- B. classes are predefined
- C. classes are not required
- D. classification is not done

11. ANN is composed of large number of highly interconnected processing elements(neurons) working in unison to solve problems.

- A. True
- B. False

12. Artificial neural network used for

- A. Pattern Recognition
- B. Classification
- C. Clustering
- D. All of these

13. A Neural Network can answer

- A. For Loop questions
- B. what-if questions
- C. IF-The-Else Analysis Questions
- D. None of these

14. Ability to learn how to do tasks based on the data given for training or initial experience

- A. Self Organization
- B. Adaptive Learning
- C. Fault tolerance
- D. Robustness

15. Feature of ANN in which ANN creates its own organization or representation of information it receives during learning time is

- A. Adaptive Learning
- B. Self Organization
- C. What-If Analysis
- D. Supervised Learning

16. In artificial Neural Network interconnected processing elements are called

- A. nodes or neurons
- B. weights
- C. axons
- D. Soma

17. Each connection link in ANN is associated with _____ which has information about the input signal.

- A. neurons
- B. weights
- C. bias
- D. activation function

18. Neurons or artificial neurons have the capability to model networks of original neurons as found in brain

- A. True
- B. False

19. Internal state of neuron is called _____, is the function of the inputs the neurons receives

- A. Weight
- B. activation or activity level of neuron
- C. Bias
- D. None of these

20. Neuron can send _____ signal at a time.

- A. multiple
- B. one

- C. none
- D. any number of

21. Membership function defines the fuzziness in a fuzzy set irrespective of the elements in the set, which are discrete or continuous.

- A. True
- B. False

22. The membership functions are generally represented in

- A. Tabular Form
- B. Graphical Form
- C. Mathematical Form
- D. Logical Form

23. Membership function can be thought of as a technique to solve empirical problems on the basis of

- A. knowledge
- B. examples
- C. learning
- D. experience

24. Three main basic features involved in characterizing membership function are

- A. Intuition, Inference, Rank Ordering
- B. Fuzzy Algorithm, Neural network, Genetic Algorithm
- C. Core, Support , Boundary
- D. Weighted Average, center of Sums, Median

25. The region of universe that is characterized by complete membership in the set is called

- A. Core
- B. Support
- C. Boundary
- D. Fuzzy

26. The crossover points of a membership function are defined as the elements in the universe for which a particular fuzzy set has values equal to

- A. infinite
- B. 1
- C. 0
- D. 0.5

27. The room temperature is hot. Here the hot (use of linguistic variable is used) can be represented by _____

- a) Fuzzy Set
- b) Crisp Set
- c) Fuzzy & Crisp Set
- d) None of the mentioned

28. Fuzzy Set theory defines fuzzy operators. Choose the fuzzy operators from the following.

- a) AND
- b) OR
- c) NOT
- d) All of the mentioned

29. _____ is/are the way/s to represent uncertainty.

- a) Fuzzy Logic
- b) Probability
- c) Entropy
- d) All of the mentioned

30. Fuzzy logic is usually represented as _____

- a) IF-THEN-ELSE rules
- b) IF-THEN rules
- c) Both IF-THEN-ELSE rules & IF-THEN rules
- d) None of the mentioned.

Section – B

(Answer all questions. Each question carries 2 marks.)

Very Short Answer Type (Answer in 20 to 25 words)

- 31. Define fuzzyfication and defuzzification?
- 32. Write short notes on Boltzmann Machine?
- 33. What are the steps involved in decision making?
- 34. Write about Reinforcement Learning?
- 35. Brief about Genetic Algorithm.
- 36. List various activation functions that are being used in neural network.
- 37. Mention difference between hard and soft computing.
- 38. What is Fuzzy Inference?
- 39. Write short notes on: (a) ADALINE and MEDALINE .
- 40. Explain the basic concept of ART.

Section – C

(Answer any one question. Question carries 20 marks.)

Long Answer type (Answer in 400-500 words)

- 41. Explain how a vowel-speech recognition system is implemented using back propagation neural network.
- 42. Write short notes on: (a) Fuzzy Logic; (b) Fuzzy Set.