

Online Examinations (Even Sem/Part-I/Part-II Examinations 2020 - 2021)

Course Name - --Soft Computing

Course Code - BCA602B

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Answer all the questions. Each question carry one mark.

9. 1. A fuzzy number is a fuzzy set with the property of

Mark only one oval.

- only normal
- only convex
- both normal and convex
- normal but not convex.

10. 2. Perceptron learning, Delta learning and LMS learning are learning methods which falls under the category of

Mark only one oval.

- Error correction learning -learning with a teacher
- Reinforcement learning - learning with a critic
- Hebbian learning
- Competitive learning - learning without a teacher

11. 3. Function of dendrites is?

Mark only one oval.

- Receptors
- Transmitter
- both receptor & transmitter
- None of these

12. 4. A model of language consists of the categories which does not include

Mark only one oval.

- Language units
- Role structure of units
- System constraints
- Structural units

13. 5. Every fuzzy complement has at most

Mark only one oval.

- two equilibrium
- three equilibrium
- one equilibrium
- None of these

14. 6. The membership values of the membership function are not strictly monotonically increasing or decreasing or strictly monotonically increasing then decreasing

Mark only one oval.

- subnormal fuzzy sets
- non convex fuzzy set
- convex fuzzy set
- concave fuzzy set

15. 7. Quantitative attributes are

Mark only one oval.

- A reference to the speed of an algorithm, which is quadratically dependent on the size of the data
- Attributes of a database table that can take only numerical values
- Tools designed to query a database
- All of these

16. 8. What is purpose of Axon?

Mark only one oval.

- receptors
- transmitter
- transmission
- None of these

17. 9. An artificial neuron receives n inputs $x_1, x_2, x_3, \dots, x_n$ with weights w_1, w_2, \dots, w_n attached to the input links. The weighted sum _____ is computed to be passed on to a non-linear filter Φ called activation function to release the output.

Mark only one oval.

- $\sum w_i$
- $\sum x_i$
- $\sum w_i * x_i$
- None of these

18. 10. Fuzzy Computing

Mark only one oval.

- mimics human behavior
- does deal with multi valued logic
- deals with information which is vague, imprecise, uncertain, ambiguous, inexact, or probabilistic
- All of these

19. 11. In a Fuzzy set a prototypical element has a value

Mark only one oval.

- 1
- 0
- infinite
- None of these

20. 12. Massively parallel machine is

Mark only one oval.

- A programming language based on logic
- A computer where each processor has its own operating system, its own memory, and its own hard disk
- Describes the structure of the contents of a database.
- None of these

21. 13. What are dendrites?

Mark only one oval.

- fibers of nerves
- nuclear projections
- other name for nucleus
- None of these

22. 14. How can output be updated in neural network?

Mark only one oval.

- synchronously
- asynchronously
- both synchronously & asynchronously
- None of these

23. 15. Conventional Artificial Intelligence is different from soft computing in the sense

Mark only one oval.

- Conventional Artificial Intelligence deal with predicate logic whereas soft computing deal with fuzzy logic
- Conventional Artificial Intelligence methods are limited by symbols where as soft computing is based on empirical data
- Conventional Artificial Intelligence deal with predicate logic whereas soft computing deal with fuzzy logic and Conventional Artificial Intelligence methods are limited by symbols where as soft computing is based on empirical data
- None of these

24. 16. What are the following sequence of steps taken in designing a fuzzy logic machine?

Mark only one oval.

- Fuzzification → Rule evaluation → Defuzzification
- Fuzzification → Defuzzification → Rule evaluation
- Rule evaluation → Fuzzification → Defuzzification
- Rule evaluation → Defuzzification → Fuzzification

25. 17. Falsification is

Mark only one oval.

- Modular design of a software application that facilitates the integration of new modules
- Showing a universal law or rule to be invalid by providing a counter example
- A set of attributes in a database table that refers to data in another table
- None of these

26. 18. Which is true for neural networks?

Mark only one oval.

- It has set of nodes and connections
- Each node computes it's weighted input
- Node could be in excited state or non-excited state
- All of these

27. 19. "Fittest will be survivor" is true for

Mark only one oval.

- Reinforcement learning
- Tabu search
- Genetic Algorithm
- ACO

28. 20. If A and B are two fuzzy sets with membership functions: $\mu_a(x) = \{0.2, 0.5, 0.6, 0.1, 0.9\}$, $\mu_b(x) = \{0.1, 0.5, 0.2, 0.7, 0.8\}$ then the value of $\mu_a \cap \mu_b$ will be

Mark only one oval.

- {0.2, 0.5, 0.6, 0.7, 0.9}
- {0.2, 0.5, 0.2, 0.1, 0.8}
- {0.1, 0.5, 0.6, 0.1, 0.8}
- {0.1, 0.5, 0.2, 0.1, 0.8}

29. 21. In ANN model

Mark only one oval.

- learning constant should be small
- should be constant throughout the epoch
- should be 'one'
- Should be small but adaptive and remain stable to irrelevant input.

30. 22. A 4-input neuron has weights 1, 2, 3 and 4. The transfer function is linear with the constant of proportionality being equal to 2. The inputs are 4, 10, 5 and 20 respectively. The output will be:

Mark only one oval.

- 238
- 76
- 119
- 123

31. 23. The size of each chromosome for the problem maximizing a function $f(x) = x^2$ in the interval $0 \leq x \leq 31$ is

Mark only one oval.

- 8
- 5
- 4
- None of these

32. 24. A heuristic is a way of trying

Mark only one oval.

- To discover something or an idea embedded in a program
- To search and measure how far a node in a search tree seems to be from a goal
- To compare two nodes in a search tree to see if one is better than another
- All of these

33. 25. Let A and B are two fuzzy sets with membership function μ , then $\mu_{A \cup B}(x)$ is equal to

Mark only one oval.

- $\mu_A(x) + \mu_B(x)$
- $\mu_A(x) - \mu_B(x)$
- $\text{MAX} \{ \mu_A(x), \mu_B(x) \}$
- $\text{MIN} \{ \mu_A(x), \mu_B(x) \}$

34. 26. What are the 2 types of learning

Mark only one oval.

- Improvised and un-improvised
- supervised and unsupervised
- Layered and unlayered
- None of these

35. 27. Which of the following is true for neural networks? (i) The training time depends on the size of the network. (ii) Neural networks can be simulated on a conventional computer. (iii) Artificial neurons are identical in operation to biological ones

Mark only one oval.

- All of these
- ii and iii
- i and ii
- None of these

36. 28. The procedure to incrementally update each of weights in neural is referred to as?

Mark only one oval.

- synchronisation
- learning law
- learning algorithm
- both learning algorithm & law

37. 29. Which instruments are used for perceiving and acting upon the environment?

Mark only one oval.

- Sensors and Actuators
- Sensors
- Perceiver
- None of these

38. 30. The boundary of the fuzzy A set is defined by those elements x of the universe such that

Mark only one oval.

- $\mu_A(x) = 1$
- $\mu_A(x) = 0$
- $0 < \mu_A(x) < 1$
- $0 \leq \mu_A(x) \leq 1$

39. 31. 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

Mark only one oval.

- 1
- 0
- infinite
- None of these

40. 32. Transparency

Mark only one oval.

- The large set of candidate solutions possible for a problem
- The information stored in a database that can be retrieved with a single query
- Worth of the output of a machine learning program that makes it understandable for humans
- None of these

41. 33. What is approx. size of neuron body(in micrometer)

Mark only one oval.

- below 5
- 5-10
- 10-80
- above 100

42. 34. Subject orientation

Mark only one oval.

- The science of collecting, organizing, and applying numerical facts
- Measure of the probability that a certain hypothesis is incorrect given certain observations.
- One of the defining aspects of a data warehouse, which is specially built around all the existing applications of the operational data
- None of these

43. 35. The values of the set membership is represented by

Mark only one oval.

- Discrete Set
- Degree of truth
- Probabilities
- Both Degree of truth & Probabilities

44. 36. A fuzzy set wherein no membership function has its value equal to 1 is called

Mark only one oval.

- subnormal fuzzy sets
- normal fuzzy set
- convex fuzzy set
- concave fuzzy set

45. 37. Search space

Mark only one oval.

- The large set of candidate solutions possible for a problem
- The information stored in a database that can be retrieved with a single query.
- Worth of the output of a machine learning program that makes it understandable for humans
- None of these

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

Mark only one oval.

- Adaptive Learning
- Self-Organization
- What-If Analysis
- Supervised Learning

47. 39. What is average potential of neural liquid in inactive state

Mark only one oval.

- +70mv
- +35mv
- 35mv
- 70mv

48. 40. Machine learning is

Mark only one oval.

- The autonomous acquisition of knowledge through the use of computer programs.
- The autonomous acquisition of knowledge through the use of manual programs
- The selective acquisition of knowledge through the use of computer programs
- The selective acquisition of knowledge through the use of manual programs

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

Mark only one oval.

- discrete or continuous
- discrete
- continuous
- None of these

50. 42. Evolutionary computation is

Mark only one oval.

- Combining different types of method or information
- Approach to the design of learning algorithms that is structured along the lines of the theory of evolution.
- Decision support systems that contain an information base filled with the knowledge of an expert formulated in terms of if-then rules.
- None of these

51. 43. What is shape of dendrites like

Mark only one oval.

- oval
- round
- tree
- rectangular

52. 44. Random descent is true for

Mark only one oval.

- Simulated annealing
- ACO
- Genetic Algorithm
- Tabu search

53. 45. Core of soft Computing is

Mark only one oval.

- Fuzzy Computing, Neural Computing, Genetic Algorithms
- Option 5
- Fuzzy Networks and Artificial Intelligence
- Artificial Intelligence and Neural Science
- Neural Science and Genetic Science

54. 46. The height $h(A)$ of a fuzzy set A is defined as $h(A) = \sup A(x)$

Mark only one oval.

- $h(A) = 0$
- $h(A) < 0$
- $h(A) = 1$
- $h(A) < 1$

55. 47. Acquired knowledge is stored in the ANN with the help of

Mark only one oval.

- activation function
- local induced field
- synaptic weight
- input signal.

56. 48. What happens in upper subnet of the hamming network?

Mark only one oval.

- classification
- storage
- output
- None of these

57. 49. Which of the following is/are found in Genetic Algorithms? I. Evolution II. Selection III. Reproduction IV. Mutation

Mark only one oval.

- (I) & (II)
- (I), (II) & (III)
- (II), (III) & (IV)
- All of these

58. 50. The proposition logic lacks the ability to symbolize

Mark only one oval.

- quantification
- connectivity
- equivalence
- Negation.

59. 51. Supervised Learning is

Mark only one oval.

- learning with the help of examples
- learning without teacher
- learning with the help of teacher
- learning with computers as supervisor

60. 52. Neuro software is:

Mark only one oval.

- A software used to analyze neurons
- It is powerful and easy neural network
- Designed to aid experts in real world
- It is software used by Neurosurgeon

61. 53. In GA term 'Gene' is termed as

Mark only one oval.

- coded design vector
- coded design variable
- every bit
- None of these

62. 54. When breadth-first search is optimal?

Mark only one oval.

- When there is less number of nodes
- When all step costs are equal
- When all step costs are unequal
- None of these

63. 55. Let A normal fuzzy set is one whose one membership function has

Mark only one oval.

- at least one element x in the universe whose membership value is 1
- all elements in the universe have membership value of 1.
- none of the elements in the universe has membership value of 1.
- at least one element x in the universe whose membership value is 0.

64. 56. Neural Computing

Mark only one oval.

- mimics human brain
- information processing paradigm
- both mimics human brain and information processing paradigm
- None of these

65. 57. An auto-associative network is

Mark only one oval.

- a neural network that contains no loops
- a neural network that contains feedback
- a neural network that has only one loop
- a single layer feed-forward neural network with pre-processing

66. 58. Where does the chemical reaction take place in neuron?

Mark only one oval.

- dendrites
- axon
- synapses
- nucleus

67. 59. Which is an external sorting algorithm?

Mark only one oval.

- Phonological
- Syntactic
- Empirical
- Logical

68. 60. Let's assume that a fuzzy set A is defined as follows: $A = 0.1/50 + 0.3/60 + 0.5/70 + 0.8/80 + 1/90 + 1/100$. What will be the value of $|A|$?

Mark only one oval.

- 3.7
- 6
- 1
- 1.7

69. 61. A fuzzy set has a membership function whose membership values are strictly monotonically increasing or strictly monotonically decreasing or strictly monotonically increasing than strictly monotonically decreasing with increasing values for elements in the universe

Mark only one oval.

- subnormal fuzzy sets
- normal fuzzy set
- convex fuzzy set
- concave fuzzy set

70. 62. Shallow knowledge

Mark only one oval.

- The large set of candidate solutions possible for a problem
- The information stored in a database that can be retrieved with a single query
- Worth of the output of a machine learning program that makes it understandable for humans
- All of these

71. 63. Signal transmission at synapse is a?

Mark only one oval.

- physical process
- chemical process
- physical & chemical both
- None of these

72. 64. Slots and facets are used in

Mark only one oval.

- Semantic Networks
- Frames
- Rules
- All of these

73. 65. How many types of agents are there in artificial intelligence?

Mark only one oval.

- 1
- 2
- 3
- 4

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

Mark only one oval.

- knowledge
- examples
- learning
- experience

75. 67. Extendible architecture is

Mark only one oval.

- Modular design of a software application that facilitates the integration of new modules
- Showing a universal law or rule to be invalid by providing a counter example
- A set of attributes in a database table that refers to data in another table
- None of these

76. 68. What are the issues on which biological networks proves to be superior than AI networks?

Mark only one oval.

- robustness & fault tolerance
- flexibility
- collective computation
- All of these

77. 69. In what ways can output be determined from activation value?

Mark only one oval.

- deterministically
- stochastically
- both deterministically & stochastically
- None of these

78. 70. Who initiated the idea of Soft Computing

Mark only one oval.

- Charles Darwin
- Lofti A Zadeh
- Rechenberg
- Mc_Culloch

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