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

Course Name - –Soft Computing
Course Code - BCSE604B

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- MCA
- M.SC.(MSJ)
- M.SC.(AM)
- M.SC.CS)
- M.SC.(ANCS)
- M.SC.(MM)
- B.A.(Eng)

Answer all the questions. Each question carry one mark.

9. 1. Core of Soft Computing is

Mark only one oval.

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

10. 2. Expert systems

Mark only one oval.

- combine different types of method or information
- approach to the design of learning algorithms that is structured along the lines of the theory of evolution
- an information base filled with the knowledge of an expert formulated in terms of if-then rules
- None of these

11. 3. 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

12. 4. 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

13. 5. 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

14. 6.Which is true about the 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
- None of these

15. 7. Fuzzy Computing

Mark only one oval.

- mimics human behavior
- doesn't deal with 2 valued logic
- deals with information which is vague, imprecise, uncertain, ambiguous, inexact, or probabilistic
- All of these

16. 8. The membership functions are generally represented in

Mark only one oval.

- Tabular Form
- Graphical Form
- Mathematical Form
- Logical Form

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

Mark only one oval.

- normal fuzzy set
- Sub normal fuzzy set
- convex fuzzy set
- concave fuzzy set

18. 10.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.

- Infinite
- 1
- 0
- 0.5

19. 11. Graphic programs widely used in the graphic arts profession include _____

Mark only one oval.

- Desktop publishing programs, image editors and illustration programs
- Artificial intelligence, virtual reality, and illustration programs
- Mega media programs, image editors, and desktop publishing programs
- Virtual reality, desktop publishing programs, and illustration programs

20. 12. Consider a fuzzy set A defined on the interval X = [0, 10] of integers by the membership Junction : μA(x) = x / (x 2)Then the α cut corresponding to α = 0.5 will be

Mark only one oval.

- {0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10}
- {1, 2, 3, 4, 5, 6, 7, 8, 9, 10}
- {2, 3, 4, 5, 6, 7, 8, 9, 10}
- None of these

21. 13. A _____ point of a fuzzy set A is a point x ∈ X at which μA(x) = 0.5

Mark only one oval.

- core
- support
- cross-over
- α - cut

22. 14. Suppose the function y and a fuzzy integer number around -4 for x are given as y= (x-3)2 + 2. Around -4 = {(2, 0.3), (3, 0.6), (4, 1), (5, 0.6), (6, 0.3)} respectively. Then f (Around -4) is given by:

Mark only one oval.

- {(2, 0.6), (3, 0.3), (6, 1), (11, 0.3)}
- {(2, 0.6), (3, 1), (6, 1), (11, 0.3)}
- {(2, 0.6), (3, 1), (6, 0.6), (11, 0.3)}
- {(2, 0.6), (3, 0.3), (6, 0.6), (11, 0.3)}

23. 15. Given U = {1,2,3,4,5,6,7} A = {(3, 0.7), (5, 1), (6, 0.8)} then A will be: (where ~ → complement)

Mark only one oval.

- {(4, 0.7), (2,1), (1,0.8)}
- {(4, 0.3.): (5, 0), (6. 0.2) }
- {(l, 1), (2, 1), (3, 0.3), (4, 1), (6,0.2), (7, 1)}
- {(3, 0.3), (6.0.2)}

24. 16.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

25. 17. A perceptron has input weights W1 = -3.9 and W2 = 1.1 with threshold value T = 0.3. What output does it give for the input x1 = 1.3 and x2 = 2.2?

Mark only one oval.

- -2.65
- -2.3
- 0
- 1

26. 18. A fuzzy set A on R is..... iff $A(\lambda x1 + (1 - \lambda)x2) \geq \min [A(x1), A(x2)]$ for all x1, x2 $\in$ R and all $\lambda \in [0, 1]$, where min denotes the minimum operator.

Mark only one oval.

- Support
- α-cut
- Convex
- Concave

27. 19. What are the 2 types of learning

Mark only one oval.

- Improvised and unimprovised
- supervised and unsupervised
- Layered and unlayered
- None of these

28. 20. Artificial neural network used for

Mark only one oval.

- Pattern Recognition
- Classification
- Clustering
- All of these

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

Mark only one oval.

- Self-Organization
- Adaptive Learning
- Fault tolerance
- Robustness

30. 22. A 3-input neuron is trained to output a zero when the input is 110 and a one when the input is 111. After generalization, the output will be zero when and only when the input is?

Mark only one oval.

- 000 or 110 or 011 or 101
- 010 or 100 or 110 or 101
- 000 or 010 or 110 or 100
- 100 or 111 or 101 or 001

31. 23.Which of the following is true?(i) On average, neural networks have higher computational rates than conventional computers.(ii) Neural networks learn by example.(iii) Neural networks mimic the way the human brain works.

Mark only one oval.

- All of the mentioned are true
- (ii) and (iii) are true
- (i), (ii) and (iii) are true
- None of the mentioned

32. 24.What is delta (error) in perceptron model of neuron?

Mark only one oval.

- error due to environmental condition
- difference between desired & target output
- can be both due to difference in target output or environmental condition
- none of the mentioned

33. 25. What is learning signal in this equation Δwij= μf(wi a)aj?

Mark only one oval.

- μ
- wi a
- aj
- f(wi a)

34. 26. What's the other name of widrow & hoff learning law?

Mark only one oval.

- Hebb
- LMS
- MMS
- None of the mentioned

35. 27.Correlation learning law is what type of learning?

Mark only one oval.

- supervised
- unsupervised
- either supervised or unsupervised
- both supervised or unsupervised

36. 28.What are general limitations of back propagation rule?

Mark only one oval.

- local minima problem
- slow convergence
- scaling
- all of these

37. 29. Supervised learning may be used for?

Mark only one oval.

- temporal learning
- structural learning
- both temporal & structural learning
- none of these

38. 30. How does blind search differ from optimization?

Mark only one oval.

- Blind search cannot result in optimal solutions whereas optimization methods do
- Blind search represents a guided approach while optimization is unguided
- Blind search usually does not conclude in one step like some optimization methods
- Blind search is usually a more efficient problem solving approach than optimization

39. 31.Which approach is most suited to structured problems with little uncertainty?

Mark only one oval.

- Simulation
- Human intuition
- Optimization
- Genetic algorithms

40. 32.Genetic algorithms belong to the family of methods in the

Mark only one oval.

- Artificial intelligence area
- Optimization area
- Complete enumeration family of methods
- Non-computer based (human) solutions area

41. 33. Which of the following is an advantage of simulation?

Mark only one oval.

- It can incorporate significant real-life complexity
- It always results in optimal solutions.
- Simulation software requires special skills.
- It solves problems in one pass with no iterations

42. 34. In agent-based modelling, agents are

Mark only one oval.

- The human workers or agents who use the system.
- Communication links between simulations.
- Autonomous rule-based decision making units
- The hardware platform used to conduct the simulation

43. 35._____ is the science that attempts to produce machines that display the same type of intelligence that humans do.

Mark only one oval.

- Nanoscience
- Nanotechnology
- Simulation
- Artificial intelligence

44. 36. One definition of AI focuses on problem-solving methods that process:

Mark only one oval.

- Smell
- Symbol
- Touch
- None

45. 37. Output segments of AI programming contain(s)

Mark only one oval.

- printed language and synthesized speech
- Manipulation of physical object
- Locomotion
- All of the above

46. 38. A series of AI systems developed by Pat Langley to explore the role of heuristics in scientific discovery.

Mark only one oval.

- RAMD
- BACON
- CU
- MIT

47. 39. The intelligent agents sense through_____ and take actions through_____

Mark only one oval.

- sensors, actuators
- remote, signals
- both of the above
- none of the above

48. 40. What is artificial intelligence

Mark only one oval.

- Programming with your own intelligence
- Putting your intelligence into Computer
- Making a Machine intelligent
- laying a Game

49. 41. Who is the father of Artificial intelligence

Mark only one oval.

- John McCarthy
- Fisher Ada
- Allen Newell
- Alan Turning

50. 42.Weak AI is

Mark only one oval.

- A set of computer programs that produce output that would be considered to reflect intelligence if it were generated by humans.
- The study of mental faculties through the use of mental models implemented on a computer.
- The embodiment of human intellectual capabilities within a computer.
- All of the above

51. 43. What is the name of the computer program that contains the distilled knowledge of expert?

Mark only one oval.

- Management information System
- Expert system
- Data base management system
- Artificial intelligence

52. 44. Computational learning theory analyzes the sample complexity and computational complexity of

Mark only one oval.

- Forced based learning
- Weak learning
- Inductive learning
- Knowledge based learning.

53. 45.Programming a robot by physically moving it through the trajectory you want it to follow is called:

Mark only one oval.

- continuous-path control
- robot vision control
- contact sensing control
- pick-and-place control

54. 46. Astronauts' is the example of _____.

Mark only one oval.

- Musical intelligence
- Linguistic intelligence
- Logical-mathematical intelligence
- Spatial intelligence

55. 47. Players' is the example of _____.

Mark only one oval.

- Bodily-Kinesthetic intelligence
- Linguistic intelligence
- Logical-mathematical intelligence
- Spatial intelligence

56. 48. _____is the set of processes that enables us to provide basis for judgement, making decisions, and prediction.

Mark only one oval.

- Reasoning
- Intelligence
- Knowledge
- none of these

57. 49. If something is true of a class of things in general, it is also true for all members of that class is call_____.

Mark only one oval.

- Inductive Reasoning
- Deductive Reasoning
- Learning
- None of these

58. 50.The objective of voice recognition is to recognize _____ is speaking.

Mark only one oval.

- WHO
- WHAT
- both of the above
- none of the above

59. 51. Automatic voice output is an example of _____.

Mark only one oval.

- Neural Networks
- Expert Systems
- Natural Language Processing
- none of the above

60. 52. _____ is the process of acquiring, interpreting, selecting, and organizing sensory information.

Mark only one oval.

- Perception
- Sensing
- Knowledge
- none of these

61. 53.Fuzzy Logic resembles the human _____methodology.

Mark only one oval.

- decision-making
- knowledge
- both of these
- none of these

62. 54. The action 'STACK(A, B)' of a robot arm specify to _____

Mark only one oval.

- Place block B on Block A
- Place blocks A, B on the table in that order
- Place blocks B, A on the table in that order
- Place block A on block B

63. 55. LISP was created by:

Mark only one oval.

- John McCarthy
- Marvin Minsky
- Alan Turing
- Allen Newell and Herbert Simon

64. 56. In LISP, the function (endp)

Mark only one oval.

- returns a new list that is equal to by copying the top-level element of
- returns the length of
- returns t if is empty
- All of the above

65. 57. KEE is the product of

Mark only one oval.

- IntelliCorpn
- Teknowledge
- Texas Instruments
- Tech knowledge

66. 58. Default reasoning is another type of

Mark only one oval.

- Analogical reasoning
- Bitonic reasoning
- Non-monotonic reasoning
- Monotonic reasoning

67. 59. In LISP, the function evaluates both and is

Mark only one oval.

- Setq
- Add
- Set
- Eva

68. 60. A Hybrid Bayesian network contains

Mark only one oval.

- Both discrete and continuous variables
- Only Discontinuous variables
- Both discrete and discontinuous variables
- Continuous variables only.

69. 61. In LISP, the addition 3+2 is entered as:

Mark only one oval.

- 3 add 2
- 3 + 2
- 3 + 2 =
- (+ 3 2)

70. 62.What is noise saturation dilemma?

Mark only one oval.

- ◯ at saturation state neuron will stop working, while biologically it's not feasible
- ◯ how can a neuron with limited operating range be made sensitive to nearly unlimited range of inputs
- ◯ can be either way
- ◯ none of the mentioned

71. 63. What is the assumption of perkels model, if f(x) is the output function in additive activation model?

Mark only one oval.

- ◯ f(x)=x
- ◯ f(x)=x^2
- ◯ f(x)=x^3
- ◯ none of the mentioned

72. 64. Who proposed the shunting activation model?

Mark only one oval.

- ◯ Rosenblatt
- ◯ Hopfield
- ◯ Perkel
- ◯ Gross berg

73. 65.Synaptic dynamics is referred as?

Mark only one oval.

- short term memory
- long term memory
- either short or long term
- both short & long term

74. 66. In a simple MLP model with 8 neurons in the input layer, 5 neurons in the hidden layer and 1 neuron in the output layer. What is the size of the weight matrices between hidden output layer and input hidden layer?

Mark only one oval.

- [1 X 5] , [5 X 8]
- [8 X 5] , [1 X 5]
- [8 X 5] , [5 X 1]
- [5 x 1] , [8 X 5]

75. 67. The input image has been converted into a matrix of size 28 X 28 and a kernel/filter of size 7 X 7 with a stride of 1. What will be the size of the convoluted matrix?

Mark only one oval.

- 22 X 22
- 21 X 21
- 28 X 28
- 7 X 7

76. 68. The number of nodes in the input layer is 10 and the hidden layer is 5. The maximum number of connections from the input layer to the hidden layer are

Mark only one oval.

- 50
- Less than 50
- More than 50
- It is an arbitrary value

77. 69.Statement 1: It is possible to train a network well by initializing all the weights as 0 Statement 2: It is possible to train a network well by initializing biases as 0 Which of the statements given above is true?

Mark only one oval.

- Statement 1 is true while Statement 2 is false
- Statement 2 is true while statement 1 is false
- Both statements are true
- Both statements are false

78. 70. Genetic Operators includes_____.

Mark only one oval.

- Crossover
- Mutation
- Selection
- all of these

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