

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

Course Name - --Computational Intelligence

Course Code - PCC-MCS202

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- M.SC.(ANCS)
- M.SC.(MM)
- B.A.(Eng)

Answer all the questions. Each question carry one mark.

9. 1.Ranking is a technique used for

Mark only one oval.

- Deleting undesirable members of the population.
- Obtaining the selection probabilities for reproduction.
- Copying the fittest member of each population into the mating pool.
- Preventing too many similar individuals from surviving to the next generation.

10. 2.Which approach to speech recognition avoids the problem caused by the variation in speech patterns among different speakers?

Mark only one oval.

- Continuous speech recognition
- Isolated word recognition
- Connected word recognition
- Speaker-dependent recognition

11. 3.In a rule based system, procedural domain knowledge is in the form

Mark only one oval.

- Production rules
- Rule interpreters
- Control rules
- Meta rules

12. 4.The component of an ICAI (Intelligent Computer-Assisted Instruction) presenting information to the student is the:

Mark only one oval.

- student model
- problem-solving expertise
- tutoring module
- all of the above

13. 5.The original LISP machines produced by both LMI and Symbolics were based on research performed at

Mark only one oval.

- CMU
- MIT
- Stanford University
- RAMD

14. 6.An intelligent robot

Mark only one oval.

- Respond to changes in its environment
- Follows instruction
- Possesses no more intelligent than a dishwasher
- All of the above

15. 7.Texas Instruments Incorporated produces a low-cost LISP machine called:

Mark only one oval.

- The Computer-Based Consultant
- The Explorer
- Smalltalk
- None

16. 8.A neuron with 4 inputs has the weight vector $w = [1, 2, 3, 4]$ and a bias = 0 (zero). The activation function is linear, where the constant of proportionality equals 2 "that is, the activation function is given by $f(\text{net}) = 2 - \text{net}$. If the input vector is $x = [4, 8, 5, 6]^T$ then the output of the neuron will be

Mark only one oval.

- 118
- 112
- 58
- 11

17. 9.LISP was created by:

Mark only one oval.

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

18. 10._____ 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

19. 11.Which approach to speech recognition avoids the problem caused by the differences in the way words are pronounced according to context?

Mark only one oval.

- continuous speech recognition
- connected word recognition
- solated word recognition
- speaker-dependent recognition

20. 12.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

21. 13.The intelligent agents sense through_____ and take actions through_____

Mark only one oval.

- sensors, actuators
- remote, signals
- both a and b
- none of these

22. 14.Unsupervised learning is

Mark only one oval.

- learning without computers
- problem based learning
- learning from environment
- learning from teachers

23. 15.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

24. 16.In LISP, the function evaluates both ___and _____

Mark only one oval.

- setq
- add
- set
- eva

25. 17. When both inputs are 1, what will be the output of the pitts model NAND gate?

Mark only one oval.

- 0
- 1
- either 0 or 1
- none of these

26. 18. Which is not property of representation of language?

Mark only one oval.

- Inferential Adequacy
- Representational Adequacy
- Representational Verification
- Inferential Efficiency

27. 19. 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.

28. 20.What stage of manufacturing process has been described as "the mapping of function onto form"?

Mark only one oval.

- distribution
- project management
- design
- field service

29. 21.Fuzzy Computing

Mark only one oval.

- mimics human behavior
- doesnot deal with 2 valued logic
- deals with information which is vague, imprecise, uncertain, ambiguous, inexact, or probabilistic
- None of these

30. 22.The truth values of traditional set theory is _____ and that of fuzzy set is _____

Mark only one oval.

- Either 0 or 1, between 0 & 1
- Between 0 & 1, either 0 or 1
- Between 0 & 1, between 0 & 1
- Either 0 or 1, either 0 or 1

31. 23.The values of the set membership is represented by _____

Mark only one oval.

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

32. 24.Fuzzy logic is usually represented as _____

Mark only one oval.

- IF-THEN-ELSE rules
- IF-THEN rules
- Both IF-THEN-ELSE rules & IF-THEN rules
- None of the mentioned

33. 25. _____ are algorithms that learn from their more complex environments (hence eco) to generalize, approximate and simplify solution logic.

Mark only one oval.

- Fuzzy Relational DB
- Ecorithms
- Fuzzy Set
- None of the mentioned

34. 26.What is synchronous update in Hopfield model?

Mark only one oval.

- all units are updated simultaneously
- a unit is selected at random and its new state is computed
- A predefined unit is selected and its new state is computed
- none of the mentioned

35. 27.If pattern is to be stored, then what does stable state should have updated value of?

Mark only one oval.

- current state
- next state
- both current and next state
- none of the mentioned

36. 28.For symmetric weights there exist?

Mark only one oval.

- basins of attraction corresponding to energy minimum
- false wells
- fluctuations in energy landscape
- none of the mentioned

37. 29.If connections are not symmetric then basins of attraction may correspond to?

Mark only one oval.

- oscillatory regions
- stable regions
- chaotic regions
- oscillatory or chaotic regions

38. 30.What is a Boltzmann machine?

Mark only one oval.

- A feedback network with hidden units
- A feedback network with hidden units and probabilistic update
- A feed forward network with hidden units
- A feed forward network with hidden units and probabilistic update

39. 31.What property should a feedback network have, to make it useful for storing information?

Mark only one oval.

- accretive behavior
- interpolative behavior
- Both accretive and interpolative behavior
- none of the mentioned

40. 32.Which layer has feedback weights in competitive neural networks?

Mark only one oval.

- input layer
- second layer
- both input and second layer
- none of the mentioned

41. 33.If a competitive network can perform feature mapping then what is that network can be called?

Mark only one oval.

- self excitatory
- self inhibitory
- self organization
- none of the mentioned

42. 34.Activation value is associated with?

Mark only one oval.

- \hat{A} potential at synapses
- cell membrane potential
- all of the mentioned
- none

43. 35.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

44. 36.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 \hat{A}

Mark only one oval.

- infinite
- 1
- 0
- 0.5

45. 37.What is global stability?

Mark only one oval.

- when both synaptic & activation dynamics are simultaneously used & are in equilibrium
- when only activation dynamics are used
- when only synaptic dynamics in equilibrium
- none of the mentioned

46. 38. Who proposed the shunting activation model?

Mark only one oval.

- Rosenblatt
- Hopfield
- Perkel
- Gross berg

47. 39. What was the goal of shunting activation model?

Mark only one oval.

- to make system dynamic
- to keep operating range of activation value to a specified range
- to make system static
- can be either for dynamic or static, depending on inputs

48. 40. The region of universe that is characterized by complete membership in the set _____ is called

Mark only one oval.

- Core
- Support
- Boundary
- Fuzzy

49. 41. Neuron can send _____ signal at a time

Mark only one oval.

- one
- multiple
- two
- none

50. 42. Computer-controlled machines that mimic the motor activities of living things are :

Mark only one oval.

- Virtual reality
- Robotics
- Knowledge-based systems
- Machines that think like a human

51. 43. Software that allows the user to create professional-quality layout and type styles is _____

Mark only one oval.

- perception systems
- knowledge robots
- desktop publishing
- desktop editing

52. 44. Widrow & Hoff learning law is special case of?

Mark only one oval.

- hebb learning law
- perceptron learning law
- delta learning law
- none of the mentioned

53. 45. What's the other name of Widrow & Hoff learning law?

Mark only one oval.

- Hebb
- LMS
- MMS
- None of the mentioned

54. 46. Which of the following learning laws belongs to same category of learning?

Mark only one oval.

- hebbian, perceptron
- perceptron, delta
- hebbian, widrow-hoff
- instar, outstar

55. 47.Activation dynamics is referred as?

Mark only one oval.

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

56. 48.The other name for instar learning law?

Mark only one oval.

- looser take it all
- winner take it all
- winner give it all
- looser give it all

57. 49.A _____ point of a fuzzy set A is a point x at which $\mu_A(x) = 0.5$

Mark only one oval.

- Core
- Support
- Cross-over
- none of these

58. 50. What are the following sequences 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

59. 51. A perceptron has input weights $W_1 = -3.9$ and $W_2 = 1.1$ with threshold value $T = 0.3$. What output does it give for the input $x_1 = 1.3$ and $x_2 = 2.2$?

Mark only one oval.

- 2.65
- 2.3
- 0
- 1

60. 52. In artificial Neural Network interconnected processing elements are called

Mark only one oval.

- nodes or neurons
- weights
- axons
- soma

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

Mark only one oval.

- weight
- activation or activity level of neuron
- bias
- none of these

62. 54. The membership functions are generally represented in

Mark only one oval.

- Tabular Form
- Graphical Form
- Mathematical Form
- Mathematical Form2

63. 55. Perceptron is

Mark only one oval.

- General class of approaches to a problem.
- Performing several computations simultaneously
- Structures in a database those are statistically relevant
- Simple forerunner of modern neural networks, without hidden layers

64. 56. 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

65. 57. What is an auto-associative network?

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

Mark only one oval.

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

67. 59.What is the expansion if PEAS in task environment?

Mark only one oval.

- Peer, Environment, Actuators, Sense
- Perceiving, Environment, Actuators, Sensors
- Performance, Environment, Actuators, Sensors
- None of the mentioned

68. 60.Associativity Property of Classical set is

Mark only one oval.

- $A \cup B = B \cup A$ $A \cap B = B \cap A$
- $A \cup (B \cap C) = (A \cup B) \cap C$ $A \cap (B \cup C) = (A \cap B) \cup C$
- $A \cup (B \cap C) = (A \cup B) \cap (A \cup C)$ $A \cap (B \cup C) = (A \cap B) \cup (A \cap C)$
- $A \cup A = A$ $A \cap A = A$

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