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M.Sc. (Second Semester)
EXAMINATION, MAY-JUNE, 2022
COMPUTER SCIENCE
Paper Fifth (II)
(Elective)
SOFT COMPUTING

Time : Three Hours] *[Maximum Marks:100*

Note:- Attempt all sections as directed.

Section-A

(Objective/Multiple Choice Questions)

(1 mark each)

Note : Attempt all questions.

Chose the correct answer.

1. How many types of random variables are there in Fuzzy logic?

   (A) 2

   (B) 4

   (C) 1

   (D) 3

2. _____is used for probability theory sentences.

   (A) Logic

   (B) Extension of propositional logic

   (C) Conditional logic

   (D) None of the above

3. What is the name of the operator in Fuzzy set theory, which is found to be linguistic in nature?

   (A) Lingual variable

   (B) Fuzz variable

   (C) Hedges

   (D) None of the above

4. _____represents The fuzzy logic.

   (A) IF - THEN rules

   (B) IF - THEN ELSE rules

   (C) Both (A) & (B)

   (D) None of the above

5. A perception 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. What is meant by an auto-associative Nural Network?

   (A) A neural network including feedback

   (B) A neural network containing no loops.

   (C) A neural network having a single loop.

   (D) A single layer feed forward neural network containing feedback.

7. Backpropogation can be defined as _____

   (A) It is another name giving 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.

8. Which of the following is not the promise of an artificial neural network?

   (A) It can servive the failure of some nodes

   (B) It can handle noise

   (C) It can explain the result

   (D) It has inherent parallelism

9. What is the name of the network, which includes backward links from the output to inputs as well as the hidden layers?

   (A) Perceptron

   (B) Self arganizing maps

   (C) Multi layered perceptron

   (D) Recurrent neural network

10. Which of the following models are utilized for learning-

    (A) Neural Network

    (B) Decision Tree

    (C) Propositional and FOL rules

    (D) All of the above

11. What is the feature at ANNs due to which they can deal with noisy, fuzzy, inconsistent data?

    (A) Associactive nature of networks

    (B) Distributive nature of networks

    (C) Both associative & distributive

    (D) None of the mentioned

12. Operations in the neural networks can perform what kind of operations?

    (A) Serial

    (B) Parallel

    (C) Serial or parallel

    (D) None of the mentioned

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

    (A) Normal fuzzy set

    (B) Sub normal fuzzy set

    (C) Convex fuzzy set

    (D) Concave fuzzy set

14. How can uncertainty be represented?

    (A) Fuzzy logic

    (B) Probability

    (C) Entropy

    (D) All of the above

15. Which of these is termed to be exploratory learning?

    (A) Unsupervised learning

    (B) Reinforcement learning

    (C) Supervised learning

    (D) Active learning

16. Which of the followings are common classes of problems in machine learning?

    (A) Regression

    (B) Classification

    (C) Clustering

    (D) All of the above

17. Machine learning is a subset of which of the following?

    (A) Artificial intelligence

    (B) Deep learning

    (C) Data learning

    (D) None of the above

18. In MATLAB, this keyword immediately moves to the next iteration of the loop?

    (A) go to

    (B) break

    (C) contine

    (D) none of the above

19. Which of the following is not a pre-defined variables in maths?

    (A) Pi

    (B) int

    (C) i

    (D) gravity

20. Characters in matlab are represented in there value in memory?

    (A) Decimal

    (B) ASCII

    (C) Hex

    (D) String

Section- B

(Very Short Answer Type Questions)

(2 marks each)

Note:- Attempt all questions.

1. What is crisp relation?
2. What do you understand by fuzzy logic?
3. What is fuzzification?
4. What are the types of activation function?
5. What do you mean by perceptron?
6. What is supervised learning?
7. What is decision tree?
8. What do you mean by clustering?
9. Who is the founder of MATLAB?
10. What do you understand by simulink?

Section-C

(Short Answer Type Questions)

(3 marks each)

1. Write the major differences between soft computing and hard computing.
2. Explain fuzzification and defuzzification.
3. Write the difference between BNN and ANN.
4. What is perceptron layer network? Explain it.
5. Explain Back-propogation Network.

6. Explain associative and auto-associative memory.
7. Explain ADLINE Network.
8. Explain Hidden Markov Models (HMM).
9. What is MATLAB used for?
10. How to run MATLAB code?

Section-D

(Long Answer Type Questions)

(6 marks each)

Note : Attempt *any five* questions.

1. Discuss different techniques used in soft computing, its applications?
2. Explain fuzzy logic, fuzzy set and memembership functions in details.
3. .Explain learning in neural network? Explain supervised and unsupervised learning in details.
4. Explain Back propogation Training algorithms in details and discuss application of it.
5. Explain the Bi-direction associative memory. Draw the basic model of Adline network.
6. What are the different popular algorithms of machine learning? Explain it.
7. What are the features of MATLAB? Explain where MATLAB can be applicable.