ESE ATKT Sep 2020
ASC ME Sem II CBCGS
Question Bank

1. Consider a fuzzy set A defined on the interval X = [0, 10] of integers by the membership function
   $\mu_A(x) = x / (x+2)$
   Then the α cut corresponding to α = 0.5 will be

A. {0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10}
B. {1, 2, 3, 4, 5, 6, 7, 8, 9, 10}
C. {2, 3, 4, 5, 6, 7, 8, 9, 10}
D. None of the above

2. The height h(A) of a fuzzy set A is defined as

A. h(A) = sup A(x)

B. h(A) = 0

C. h(A) <0

D. h(A)=1

3. Let R and S be two fuzzy relations defined as follows. Then, the resulting relation, T, which relates elements of universe x to the elements of universe z using max-min composition is given by:

$$R = \begin{array}{c} \\ x_1 \\ x_2 \end{array} \begin{array}{c} \begin{array}{cc} y_1 & y_2 \end{array} \\ \begin{bmatrix} 0.6 & 0.4 \\ 0.7 & 0.3 \end{bmatrix} \end{array} \quad \text{and} \quad S = \begin{array}{c} \\ y_1 \\ y_2 \end{array} \begin{array}{c} \begin{array}{ccc} z_1 & z_2 & z_3 \end{array} \\ \begin{bmatrix} 0.8 & 0.5 & 0.1 \\ 0.0 & 0.6 & 0.4 \end{bmatrix} \end{array}$$

(1)
$$T = \begin{array}{c} \\ x_1 \\ x_2 \end{array} \begin{array}{c} \begin{array}{ccc} z_1 & z_2 & z_3 \end{array} \\ \begin{bmatrix} 0.4 & 0.6 & 0.4 \\ 0.7 & 0.7 & 0.7 \end{bmatrix} \end{array}$$

(2)
$$T = \begin{array}{c} \\ x_1 \\ x_2 \end{array} \begin{array}{c} \begin{array}{ccc} z_1 & z_2 & z_3 \end{array} \\ \begin{bmatrix} 0.4 & 0.6 & 0.4 \\ 0.8 & 0.5 & 0.4 \end{bmatrix} \end{array}$$

(3)
$$T = \begin{array}{c} \\ x_1 \\ x_2 \end{array} \begin{array}{c} \begin{array}{ccc} z_1 & z_2 & z_3 \end{array} \\ \begin{bmatrix} 0.6 & 0.5 & 0.4 \\ 0.7 & 0.5 & 0.3 \end{bmatrix} \end{array}$$

(4)
$$T = \begin{array}{c} \\ x_1 \\ x_2 \end{array} \begin{array}{c} \begin{array}{ccc} z_1 & z_2 & z_3 \end{array} \\ \begin{bmatrix} 0.6 & 0.5 & 0.5 \\ 0.7 & 0.7 & 0.7 \end{bmatrix} \end{array}$$

A. (1)
B. (2)
C. (3)
D. (4)

4. The truth values of traditional set theory is _____ and that of fuzzy set is _____
A. Either 0 or 1, between 0 & 1
B. Between 0 & 1, either 0 or 1
C. Between 0 & 1, between 0 & 1
D. Either 0 or 1, either 0 or 1

5. What action to take when IF (temperature=Warm) AND (target=Warm) THEN?
A. Heat
B. No_Change
C. Cool
D. None of the Above

6. Fuzzy logic is useful for both commercial and practical purposes.
A. True, False
B. True, True
C. False, False
D. False, True

7. Which of the following is not a part of fuzzy logic Systems Architecture?
A. Fuzzification Module
B. Knowledge Base
C. Defuzzification Module
D. Interference base

8. Which of the following would have a constant input in each epoch of training a Deep Learning model?

A. Weight between input and hidden layer
B. Weight between hidden and output layer
C. Biases of all hidden layer neurons
D. Activation function of output layer

9. Which is not an applications of Neuro Genetic system:

A. Face Recognition
B. Animal and human Research
C. DNA matching
D. Economics

10. K in kSOM stands for

A. Kohonen
B. Kohenon
C. Kohonon
D. Kehenen

11. LVQ applies which learning rule:

A. Winner take all Hebbian Learning
B. Perceptron Learning Rule
C. Delta Learning Rule
D. Correlation Learning Rule

12. Which among the following is not a DL architecture:

A. Generative
B. Discriminative
C. Hybrid
D. Adversarial

13. BART stands for

A. Bring Adapt Resonate and Train
B. Basic Adaptive Resonance Theory
C. Basic Adapted Recall Theory
D. Best Artificial Recall Training

14. What are general limitations of back propagation rule?
A. local minima problem
B. slow convergence
C. scaling
D. all of the mentioned

15. RBF NN uses

A. kNN
B. kmeans clustering
C. SVM
D. DT

16. Number of layers in ANFIS:

A. 6

B. 3
C. 4
D. 5

17. Which is not an applications of Fuzzy Neural system:

A. Traffic control system
B. Medical System
C. Forecasting and prediction
D. DNA Matching

18. SOM is used for

A. Clustering
B. Regression
C. Classification
D. Reinforcement

19. What are the general tasks that are performed with backpropagation algorithm? (2)
A. pattern mapping
B. function approximation
C. prediction
D. all of the mentioned

20. RBF stands for

A. Radius Base Function
B. Radial Basis Function
C. Radio Based Functionality
D. Radium Basis Function

21. ANFIS stands for

A. Adaptive Neuro Fuzzy Inference System
B. Adaptable Neuron and Fuzziness Inferring System

C. Adaptive Neuro and Fuzzy Inference System
D. Adapting Nucleus with Fuzzy Inference System

22. Hybrid Neural and Fuzzy N/W is termed as

A. Fuzzy Neural Network
B. Neuro Fuzzy Network
C. Both
D. None

23. LVQ is related to which ML algo

A. kNN
B. SVM
C. DT
D. kMeans

24 What is true regarding backpropagation rule?
A. it is also called generalized delta rule
B. error in output is propagated backwards only to determine weight updates
C. there is no feedback of signal at nay stage
D. all of the mentioned

25. What Is The First Step Of Fuzzy Logic Toolbox?

A. Fuzzification of the input variables
B. Defuzzification
C. Application of the fuzzy operator (AND or OR) in the antecedent
D. Aggregation of the consequents across the rules