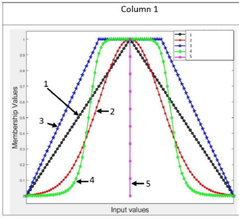
Unit 5 - Week 3 :

Assignment 3

The due date for submitting this assignment has passed.
As per our records you have not submitted this assignment.

Due on 2020-03-18, 23:59 IST.

1) Match the columns 1 and 2 based on the given variations of membership values against input values. 2 points

Column 1	Column 2
	(A) Trapezoidal
	(B) Singleton
	(C) Bell-shaped
	(D) Triangular
	(E) Gaussian

a. 1-B, 2-A, 3-E, 4-C, 5-D
b. 1-E, 2-C, 3-B, 4-A, 5-D
c. 1-D, 2-E, 3-A, 4-C, 5-B
d. 1-D, 2-B, 3- C, 4-A, 5-E

a.
b.
c.
d.

No, the answer is incorrect.
Score: 0
Accepted Answers:
c.

2) Which one of the following statements is incorrect regarding Fuzzy Logic Controller (FLC)? 2 points

a. It is a potential tool for dealing with imprecision and uncertainty.
b. It does not require an extensive mathematical formulation.
c. The designers need not have any knowledge of the process to be controlled.
d. Computational complexity of an FLC increases for controlling a process involving more number of variables.

a.
b.
c.
d.

No, the answer is incorrect.
Score: 0
Accepted Answers:
c.

3) Let us suppose that there are n input variables and each variable has been defined using m linguistic terms. To design a hierarchical fuzzy logic controller for establishing input-output relationships, the number of rules becomes equal to 2 points

a. $(n-1)m^2$
b. $(m-1)n^2$
c. $m \times n$
d. $(m-1)^2(n-1)^2$

a.
b.
c.
d.

No, the answer is incorrect.
Score: 0
Accepted Answers:
a.

4) Let us suppose that an FLC is to be designed and developed for controlling a process having 4 input variables and each input has been represented using 5 linguistic terms ($viz.$ $VL, L, M, H,$ and VH). Then, the number of rules, while using a conventional FLC and hierarchical FLC becomes equal to 2 points

a. 625 and 64 rules, respectively
b. 625 and 75 rules, respectively
c. 1024 and 96 rules, respectively
d. 1024 and 20 rules, respectively

a.
b.
c.
d.

No, the answer is incorrect.
Score: 0
Accepted Answers:
b.

5) Find out the correct statement regarding Entropy-based Clustering Technique. 2 points

a. Entropy-based clustering is able to yield both more compact and more distinct clusters.
b. Entropy-based clustering is an iterative algorithm, in which the cluster centers and membership values of the data points with the clusters are going to be updated to minimize the dissimilarity measures.
c. Entropy-based clustering is able to yield more compact but less distinct clusters.
d. Entropy-based clustering is able to yield less compact but more distinct clusters.

a.
b.
c.
d.

No, the answer is incorrect.
Score: 0
Accepted Answers:
d.

6) In Entropy-based fuzzy clustering algorithm, the concept of "entropy" is used to 2 points

a. declare the outliers.
b. declare/identify the cluster center.
c. determine the number of data points to be put in each of the clusters.
d. declare the number of clusters to be made.

a.
b.
c.
d.

No, the answer is incorrect.
Score: 0
Accepted Answers:
b.

7) Which one of the following statements is correct? 2 points

a. In Fuzzy C-means algorithm, an attempt is made to minimize similarity measure of the data points with the pre-defined clusters.
b. Fuzzy C-means algorithm is more flexible compared to Entropy-based clustering algorithm in terms of its sensitivity to the threshold value of similarity.
c. Entropy-based fuzzy clustering is independent of the threshold value of similarity.
d. Compactness and distinctness of the clusters are decided based on the intra-cluster and inter-cluster distances of the data points, respectively.

a.
b.
c.
d.

No, the answer is incorrect.
Score: 0
Accepted Answers:
d.

8) Which one of the following is not a fuzzy clustering method? 2 points

a. Potential-based Clustering
b. Medoids-based Clustering
c. Entropy-based Clustering
d. C-Means Clustering

a.
b.
c.
d.

No, the answer is incorrect.
Score: 0
Accepted Answers:
b.

9) Which one of the following statements is incorrect with respect to fuzzy clustering technique? 2 points

a. Clustering is not a data mining tool.
b. Clusters may have either the fixed or vague boundaries.
c. Clustering technique divides the data into different clusters based on the concept of similarity.
d. Clustering techniques analyze the pattern of the data set.

a.
b.
c.
d.

No, the answer is incorrect.
Score: 0
Accepted Answers:
a.

10) In Entropy-based fuzzy clustering technique, a very distant point from others can also be selected as a cluster center, due to a low value of its entropy. We may need to declare a valid cluster. The validity of a cluster in this algorithm is checked by using the method given below. 2 points

a. Calculating the average entropy value of the data points lying in each cluster and comparing it with a threshold parameter (in %)
b. Calculating the average similarity value of the data points lying in each cluster and comparing it with a threshold parameter (in %)
c. Counting the number of data points lying in each cluster and comparing it with a threshold parameter (in %)
d. Calculating the average dissimilarity value of the data points lying in each cluster and comparing it with a threshold parameter (in %)

a.
b.
c.
d.

No, the answer is incorrect.
Score: 0
Accepted Answers:
c.