Assignment 2

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

1) Linguistic fuzzy modeling (Mamdani Approach) is characterized by

- Low interpretability but High accuracy.
- High interpretability but Low accuracy.
- Low interpretability and Low accuracy.
- High interpretability and High accuracy.

- a.
- b.
- c.
- d.

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

2) In Takagi and Sugeno’s approach of fuzzy reasoning tool, strength of a fired rule is calculated using

- AND operator
- OR operator
- Multiplication operator
- UNION operator

- a.
- b.
- c.
- d.

No, the answer is incorrect.
Score: 0
Accepted Answers:
- c.
Which one of the following statements is TRUE related to fuzzy reasoning tool?

- a. Inputs of a fuzzy reasoning tool are to be in real scales ONLY.
- b. Inputs of a fuzzy reasoning tool are to be in normalized scales ONLY.
- c. Inputs of a fuzzy reasoning tool may be in either real scales or normalized scales.
- d. Inputs of a fuzzy reasoning tool are to be in the range of (-1.0 to 1.0)

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

4) In Mamdani approach of fuzzy reasoning tool, an INFEERENCE ENGINE is used to

- a. calculate crisp output for a set of inputs.
- b. determine fuzzified output(s) for a set of inputs.
- c. determine the degrees of belongingness of the inputs.
- d. classify the variables into the inputs and outputs.

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

5) In fuzzy reasoning tool, defuzzification module aims to

- a. determine the fuzzified output for a set of inputs.
- b. determine the crisp output for a set of inputs.
- c. select a few fired rules from a set of rules.
- d. identify the inputs and outputs of a process.

No, the answer is incorrect.
Score: 0
Accepted Answers: b.
In Mamdani approach of fuzzy reasoning tool, let us assume that two rules are going to be fired for a set of inputs. The fuzzified outputs of two fired rules are shown in Figs. A and B.

![Fuzzy Logic Diagram](https://onlinecourses-archive.nptel.ac.in/noc19...)

**Fig. A:** Fuzzified output of first fired rule

**Fig. B:** Fuzzified output of second fired rule

By using Center of Sums Method, the crisp output is found to be as:

- a. 6.5
- b. 11.5
- c. 10.5
- d. 8.5

No, the answer is incorrect.

Score: 0

Accepted Answers: d.

7)

Consider the same numerical example of Question 6. By using the Mean of Maxima method of defuzzification, the crisp output is found to be as:

- a. 6.5
- b. 9.5
- c. 7.5
- d. 8.5

No, the answer is incorrect.

Score: 0

Accepted Answers: c.
Which one of the following statements is TRUE?

a. Takagi and Sugeno's approach is computationally more expensive compared to Mamdani approach.

b. Mamdani approach is computationally more expensive compared to Takagi and Sugeno's approach.

c. Both Mamdani approach as well as Takagi and Sugeno's approach has the same level of computational complexity.

d. Computational complexity of Mamdani approach is not comparable to that of Takagi and Sugeno's approach.

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

9) In Takagi and Sugeno's approach of fuzzy reasoning tool, the output for a set of inputs is determined:

a. using only the strengths of fired rules.

b. using only the information of input variables.

c. using the information of input variables and strengths of the fired rules.

d. using a defuzzification process.

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

10) Fuzzy reasoning tool can be used to:

a. classify the data based on similarity.

b. cluster the data based on similarity.

c. reduce dimensionality of a data set.

d. establish input-output relationships of a process.

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