

Unit 9 - Week 7 :

Course outline

How does an NPTEL online course work?

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Week 7 :

Lecture 31 : Optimal Designs of Neural Networks

Lecture 32 : Optimal Designs of Neural Networks (Contd.)

Lecture 33 : Neuro-Fuzzy System

Lecture 34 : Neuro-Fuzzy System (Contd.)

Lecture 35 : Neuro-Fuzzy System (Contd.)

Lecture 36 : Neuro-Fuzzy System (Contd.)

Lecture Material

Quiz : Assignment 7

Week 7 Feedback Form

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Assignment Detailed Solution

Assignment 7

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

Due on 2020-04-15, 23:59 IST.

1) Which one of the following statements is TRUE?

2 points

- A genetic-neural system aims to evolve a neural network (NN) using a genetic algorithm (GA).
- A genetic-neural system aims to improve the performance of a GA by using NN.
- In genetic-neural system, GA can be used to determine the topology of NN, only.
- In genetic-neural system, GA can be used to determine the weights and bias value, only.

- a.
 b.
 c.
 d.

No, the answer is incorrect.
Score: 0

Accepted Answers:

a.

2) In ANFIS, which type of fuzzy reasoning tool is used?

2 points

- Mamdani type.
- Takagi and Sugeno's type.
- Combined Mamdani and Takagi and Sugeno's types.
- None of the above.

- a.
 b.
 c.
 d.

No, the answer is incorrect.
Score: 0

Accepted Answers:

b.

3) The main purpose of designing a neuro-fuzzy system is to develop

2 points

- a NN using the structure of a FLC.
- a fuzzy reasoning tool using the structure of a neural network.
- neither a fuzzy reasoning tool nor a neural network.
- both fuzzy reasoning tool and neural network.

- a.
 b.
 c.
 d.

No, the answer is incorrect.
Score: 0

Accepted Answers:

b.

4) In a neuro-fuzzy system, a binary-coded GA can be utilized, whose strings will carry information of the

2 points

- Rule Base only
- Data Base only
- Both Rule Base and Data Base
- Neither Rule Base nor Data Base

- a.
 b.
 c.
 d.

No, the answer is incorrect.
Score: 0

Accepted Answers:

c.

5) Let us assume that in an ANFIS, there are two inputs: I_1 and I_2 . According to first-order Takagi and Sugeno's model of FLC, the output of i^{th} -rule can be expressed as follows:

2 points

- $y^i = a_i I_1$, where a_i is the coefficient.
- $y^i = a_i I_2$, where a_i is the coefficient.
- $y^i = a_i I_1 + b_i I_2 + c_i$, where a_i, b_i, c_i are the coefficients.
- $y^i = a_i I_1^2 + b_i I_2^2 + c_i I_1 I_2$, where a_i, b_i, c_i are the coefficients.

- a.
 b.
 c.
 d.

No, the answer is incorrect.
Score: 0

Accepted Answers:

c.

6) In general, the type of transfer function used in first layer (input layer) of a Neuro-Fuzzy system is,

2 points

- Gaussian function.
- Tan-sigmoid function.
- Linear function.
- Log-sigmoid function.

- a.
 b.
 c.
 d.

No, the answer is incorrect.
Score: 0

Accepted Answers:

c.

7) In a neuro-fuzzy system with Mamdani approach, AND operation is carried out

2 points

- Before fuzzification.
- Before fuzzy inference.
- After defuzzification.
- After fuzzy inference.

- a.
 b.
 c.
 d.

No, the answer is incorrect.
Score: 0

Accepted Answers:

b.

8) In a neuro-fuzzy system with Takagi and Sugeno's approach, the firing strength of a rule is determined using

2 points

- Minimum operator
- Maximum operator
- Multiplication operator
- Division operator

- a.
 b.
 c.
 d.

No, the answer is incorrect.
Score: 0

Accepted Answers:

c.

9) In a neuro-fuzzy system with Mamdani approach, the firing strength of a rule is determined using

2 points

- Minimum operator
- Maximum operator
- Multiplication operator
- Division operator

- a.
 b.
 c.
 d.

No, the answer is incorrect.
Score: 0

Accepted Answers:

a.

10) In a neuro-fuzzy system with Mamdani approach, the final output for a set of inputs is determined by

2 points

- summing up the outputs of all the fired rules
- summing up the weighted outputs of all the fired rules
- using center of sums method
- using a multiplication operator

- a.
 b.
 c.
 d.

No, the answer is incorrect.
Score: 0

Accepted Answers:

c.