

H-4/21/22

Roll No.

IV Semester Examination, 2022**M.Sc.****INFORMATION TECHNOLOGY**

Paper II

(Soft Computing)

Time : 3 Hours]

[Max. Marks : 100

Note : All questions are compulsory. Question Paper comprises of 3 sections. Section **A** is objective type/multiple choice questions with no internal choice. Section **B** is short answer type with internal choice. Section **C** is long answer type with internal choice.

SECTION A**1×10=10****(Objective Type/Multiple Type Questions)***Choose the correct answer :*

1. Perceptron learning, Delta learning and LMS learning are learning methods which falls under the categories of :
 - (a) Error correction learning
 - (b) Reinforcement learning
 - (c) Hebbian learning
 - (d) Competitive learning

P.T.O.

2. What are the following sequence of steps taken in designing a fuzzy logic machine ?
 - (a) Fuzzification → Rule evaluation → Defuzzification
 - (b) Fuzzification → Defuzzification → Rule evaluation
 - (c) Rule evaluation → Fuzzification → Defuzzification
 - (d) Rule evaluation → Defuzzification → Fuzzification
3. Who was the inventor of the first neurocomputer ?
 - (a) Dr. John Hecht-Nielsen
 - (b) Dr. Robert Hecht-Nielsen
 - (c) Dr. Alex Hecht-Nielsen
 - (d) Dr. Steve Hecht-Nielsen
4. In which ANN, loops are allowed ?
 - (a) Free Forward ANN (b) Feed Back ANN
 - (c) Both (a) and (b) (d) None of these
5. Which is one of the application of associative memories ?
 - (a) Direct pattern recall

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- (b) Voice signal recall
 - (c) Mapping of the signal
 - (d) Image pattern recall from noisy clues
- 6.** What is perceptron ?
- (a) A single layer feed forward neural network with pre processing
 - (b) An auto-association neural network
 - (c) A double layer auto-associative neural network
 - (d) A neural network that contains feedback
- 7.** Evolutionary computation is :
- (a) Combining different types of method or information
 - (b) Approach to the design of learning algorithm
 - (c) Decision support system that contain an information base filled with the knowledge of an expert
 - (d) None of the above
- 8.** Genetic algorithm are heuristic methods that do not guarantee an optimal solution to a problem state true or false :
- (a) True
 - (b) False

- 9.** Which of the following is not a predefined variable in MATLAB ?
- (a) Pi
 - (b) inf
 - (c) i
 - (d) gravity
- 10.** What are the characters in MATLAB are represented in their value in memory ?
- (a) Decimal
 - (b) ASCII
 - (c) Hex
 - (d) String

SECTION B**6×5=30****(Short Answer Type Questions)****Unit-I**

- 1.** Mention the five properties of fuzzy set along with appropriate example.

Or

Describe fuzzy and crisp relations. Describe the method for fuzzy to crisp conversion.

Unit-II

- 2.** Describe the Artificial Neuron and its model.

Or

What are various learning techniques used in neural network ?

Unit-III

3. Explain HEBB learning rule & Amari General learning rule.

Or

Explain Associative memory with example.

Unit-IV

4. Write an overview of evolutionary computing.

Or

Explain about Genetic algorithm & optimization.

Unit-V

5. Explain if-end structure in MATLAB.

Or

Explain function in MATLAB and how can the create a function file ?

SECTION C

12×5=60

(Long Answer Type Questions)

Unit-I

1. Explain Fuzzy decision making with suitable example.

Or

Write a detailed note on Fuzzy arithmetic with example.

Unit-II

2. Explain the working and architecture of Artificial Neural Network.

Or

How do activation function put affect on Artificial Neuron ? Explain variour.

Unit-III

3. Describe single layer Artificial neural network and compare it with multilayer perception model.

Or

Describe the various methods of back propogation learning.

Unit-IV

4. Explain Integration of genetic algorithm with neural network.

Or

Explain integration of genetic algorithm with fuzzy logic.

[7]

Unit-V

5. Write some properties of Simulink along with description.

Or

If X, Y are matrix then differentiate between left division and write division of three matrix assume suitable value.

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