G-4/426/21   Roll No. ....

M.Sc. IV Semester Examination, 2021
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 Questions)

Choose the correct answer :

1. Which of the following is associated with fuzzy logic ?

(a) Crisp set logic   (b) Many valued logic

(c) Two valued logic (d) Binary set logic

2. How many types of random variables are there in Fuzzy logic ?

(a) 2   (b) 4

(c) 1   (d) 3

P.T.O.

[2]

3. A perceptron is :

(a) a single layer feed forward neural network with pre-processing

(b) An auto-associative neural network

(c) a double layer auto-associative neural network

(d) a neural network that contains feedback.

4. Genetic Algorithm are a part of :

(a) Evolutionary computing

(b) Inspired by Darwin's Theory about evolution

(c) are adaptive heuristic search algorithm based on the evolutionary idea of natural selection and genetics

(d) All of the above.

5. What are the 2 types of learning :

(a) Improvised and unimprovised

(b) Supervised and unsupervised

(c) Layered and unlayered

(d) None of the above.

6. How to clear command window in MATLAB ?

(a) clear   (b) clc

(c) close all   (d) clear all.

G-4/426/21

7. Which of the following command lists the current variable in MATLAB ?

(a) Type   (b) Who

(c) Pwd   (d) Date

8. Each connective link in ANN is linked with .... that contains statics about the input signal.

(a) Neurons   (b) Activation function

(c) Weighs   (d) Bias.

9. Which of the following is the best representation of individual genes ?

(a) Coding   (b) Conversion

(c) Encoding   (d) None of the above.

10. What does FAM stand for ?

(a) Fuzy Association Memory

(b) Fuzzy Associative Memory

(c) Fuzzy Assist Memory

(d) None of the above.

SECTION B   6×5=30

(Short Answer Type Questions)

Note : *Attempt one question from each unit.*

Unit-I

1. How does a Fuzzy set differ from crisp set ? Explain Fuzziness of Fuzzy set.

Or

Draw the block diagram of Fuzzy Logic system. Also mention some applications of Fuzzy logic.

Unit-II

2. How is ANN useful in making a machine intelligent ?

Or

How many types of artificial neural network used in machine learning ? Explain.

Unit-III

3. List few application of Adaline and Madaline networks. Draw the basic model of Madeline network.

Or

What is meant by Associative Memory ? Explain. Also explain hetero-associative memory.

Unit-IV

4. Tabulate the different terminology which are common in natural evolution and Genetic Algorithm. Also state the operators of Genetic algorithm.

Or

Discuss about the various types of crossover and mutation techniques involved in Genetic Algorithm.

Unit-V

5. Explain what is simulink ?

Or

What is the type of program files that Matlab allows to write.

SECTION C   12×5=60

(Long Answer Type Questions)

Note : *Attempt one question from each unit.*

Unit-I

1. Design the general scheme for Fuzzy controller. How different modules are interconnected ?

Or

Discuss following operations of Fuzzy set with example :

(a) Containment   (b) Union

(c) Intersection   (d) Complement

(e) Cortesian Product.

Unit-II

2. Draw and describe the different acivation functions used in Artificial Neural Network.

Or

Why use Artificial Neural Network ? What are its Advantages ? How ANN different from normal computers ?

Unit-III

3. Discuss the Back propogation learning methods and algorithm in detail.

Or

Explain characteristic, features, limitation and application of associative memory.

Unit-IV

4. Solve travelling salesman problem using genetic problem with example.

Or

Mention the properties and drawbacks of Genetic neuro hybrid system.

Unit-V

5. Using MATLAB Neural Network tool box. Discuss how will you identify and control the linear and non-linear dynamic system.

Or

Give the defuzzification methods available in MATLAB toolbox and what are the inference methods available in MATLAB tool box.

✮ ✮ ✮ ✮ ✮ c ✮ ✮ ✮ ✮ ✮