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 **Reg. No. :**

**Question Paper Code: 47064**

B.E. / B.Tech. DEGREE EXAMINATION, NOV 2017

Seventh Semester

Instrumentation and Control Engineering

14UIC704 – APPLIED SOFT COMPUTING

 (Regulation 2014)

Duration: Three hours Maximum: 100 Marks

Answer ALL Questions

PART A - (10 x 1 = 10 Marks)

1. Artificial neural network used for\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

 (a) Pattern Recognition (b) Classification

 (c) Clustering (d) All of these

2. Ability to learn how to do tasks based on the data given for training or initial

 experience\_\_\_\_\_\_\_\_\_

 (a) Self Organization (b) Adaptive Learning (c) Fault tolerance (d) Robustness

3. Perceptron is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

 (a) General class of approaches to a problem

 (b) Performing several computations simultaneously

 (c) Performing several computations simultaneously

 (d) Simple forerunner of modern neural networks, without hidden layers

4. Feature of ANN in which ANN  creates its own organization or representation of information it receives during learning time is \_\_\_\_\_\_\_\_\_\_\_\_\_

 (a) Adaptive Learning (b) Self Organization

 (c) What-If Analysis (d) Supervised Learning

5. Traditional set theory is also known as Crisp Set theory.

 (a) True (b) False

6. How many types of random variables are available?

 (a) 1 (b)  2 (c)  3 (d)  4

7. Fuzzy logic is usually represented as

 (a) IF-THEN-ELSE rules (b) IF-THEN rules

 (c) Both a & b (d) None of the mentioned

 8. \_\_\_\_\_\_\_\_\_\_\_\_\_\_ is/are the way/s to represent uncertainty.

 (a) Fuzzy Logic (b) Probability

 (c) Entropy (d) All of the mentioned

9. Which of the following(s) is/are found in Genetic Algorithms?

 (a) Evolution & Selection (b) Economics

 (c) Reproduction (d) Mutation

10. Genetic algorithm can be used to determine \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

 (a) Membership function (b) Probability

 (c) Fault tolerance (d) Robustness

 PART - B (5 x 2 = 10 Marks)

11. Define Neural Network and Mention its types.

12. What is the purpose of discrete time hopfield network?

13. List the operations on classical sets?

14. Write the function of FLC in home heating system.

15. Define genetic algorithm.

 PART - C (5 x 16 = 80 Marks)

16. (a) Draw the structure of biological neuron and explain the function of each parts.

 (16)

Or

 (b) Explain the functioning of art artificial neural network with neat sketches. (16)

17. (a) Describe the algorithm of discrete time hopfield network with its architecture. (16)

 Or

(b) Discuss in detail the transient response of continuous time network. (16)

18. (a) Discuss briefly the properties of crisp sets. (16)

 Or

 (b) Mention the need for defuzzification: Explain the methods of

 defuzzification with its formulae. (16)

19. (a) What are the membership functions used in fuzzificatin process? Discuss it briefly.

 (16)

 Or

 (b) Discuss briefly about the fuzzy rule base for the home heating system. (16)

20. (a) Describe the basics of genetic algorithm and its applications. (16)

Or

 (b) Elaborate in detail the search algorithm. (16)