

B.Tech III Year II Semester (R13) Regular & Supplementary Examinations May/June 2017

**ARTIFICIAL NEURAL NETWORKS & FUZZY SYSTEMS**

(Electronics & Communication Engineering)

Time: 3 hours

Max. Marks: 70

**PART - A**

(Compulsory Question)

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1 Answer the following: (10 X 02 = 20 Marks)

- (a) List the applications of neural network.
- (b) State the properties of classical set.
- (c) Define fuzzy Cartesian product.
- (d) Write four advantages of GA.
- (e) Name the different types of defuzzification techniques.
- (f) State core, support and boundary in membership function.
- (g) Define membership function.
- (h) What is supervised and unsupervised learning?
- (i) Define Lambda – cuts for fuzzy set.
- (j) Define power set.

**PART - B**

(Answer all five units, 5 X 10 = 50 Marks)

**UNIT - I**

2 Explain the properties of commutativity, associativity, distributivity, idempotence and identity with respect to crisp sets.

**OR**

- 3 (a) Write in detail about error-detection learning.
- (b) Write in detail about memory brief learning.

**UNIT - II**

4 What are the characteristics of feed forward neural networks? What is the significance of number of neurons in i/p & o/p layers?

**OR**

5 Explain the following terms: (a) Resting potential. (b) Nernst equation. (c) Action potential.

**UNIT - III**

6 Write short notes on: (a) Error correction learning. (b) Reinforcement learning.

**OR**

7 Give three sets A, B and C. Prove Demorgan's law using Venn diagrams.

**UNIT - IV**

8 Define recurrent network, give some examples and explain them.

**OR**

9 Draw the flow chart of producing solution of optimization problems using feed forward.

**UNIT - V**

10 Describe the design of fuzzy logic control with an air conditioner controller as an example.

**OR**

11 Write short notes on the following: (a) Adaptive fuzzy systems. (b) Fuzzy neural networks.