

(Following Paper ID and Roll No. to be filled in your Answer Book)

**PAPER ID : 0935**

Roll No.

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### B.Tech.

(SEM IV) EVEN SEMESTER THEORY EXAMINATION,  
2009-2010

### INTRODUCTION TO SOFT COMPUTING (NEURAL NETWORKS, FUZZY LOGIC AND GENETIC ALGORITHM)

Time : 3 Hours

Total Marks : 100

Note : (i) Attempt all questions.

(ii) All questions carries equal marks.

1. Attempt any four parts :

- (a) Define Neural Network Architecture.
- (b) Give a comparison between Single layer Feed Forward Network, Multi-layer Feed Forward Network and Recurrent Network.
- (c) Discuss any three learning methods.
- (d) What is Rosenblatt's Perceptron ?
- (e) Artificial Intelligence can be used in Neural Networks or not. Justify your answer.
- (f) Define Associative Memory and write down its applications.

2. Attempt any four parts :

- (a) Define Single Layer Artificial Neural Network.
- (b) What do you understand by the term 'training of Neural Network' ?
- (c) Discuss "Selection of various parameter in BPN.
- (d) What is adaptive Back Propagation ?
- (e) How Tuning Parameters affect the Back Propagation Neural Network ?
- (f) Define augmented BPN.

3. Attempt any two parts :

- (a) What is Time dependent Fuzzy Logic ? Discuss in detail. How Crisp Logic is different from Fuzzy Logic define ?
- (b) Define the following :
  - (i) Fuzzy to crisp conversion
  - (ii) Properties of Fuzzy sets
  - (iii) Linguistic variables
- (c) Discuss Fuzzy Artificial Neural Network in detail. Write down its application.

4. Attempt any two parts :

- (a) What is Fuzzy Quantifiers? Discuss in detail. Differentiate between Absolute and Relative Quantifier. Also define Fuzzification.
- (b) Define Membership function in detail. Also define its role and application.

(c) Explain the following :

- (i) Fuzzy interface .
- (ii) Formation of rule based Matrix
- (iii) Yamakawa's Air Conditioner controller.

5. Attempt any two parts :

- (a) Define creation of offsprings in detail. Also write down the working principle of GA and application of GA.
- (b) Define the following :
  - (i) Fitness function
  - (ii) Genetic operator
  - (iii) Cross over
- (c) Draw and discuss the Flowchart of GA. Also write down its importance.

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