

Printed Pages : 3



EOE041

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

**PAPER ID : 199407**

Roll No.

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### B. Tech.

(SEM. IV) THEORY EXAMINATION, 2014-15  
**INTRODUCTION TO SOFT COMPUTING (NEURAL NETWORKS, FUZZY LOGIC & GENETIC ALGORITHM**

Time : 3 Hours]

[Total Marks : 100

**Note :** Attempt all the questions. All questions carry equal marks.

1. Attempt any four parts of the following : 5×4=20
  - (a) Discuss the analogy between biological and artificial neuron.
  - (b) Discuss the various learning techniques in detail.
  - (c) Is it possible to use Artificial Intelligence in Neural network? If yes give the proper justification.
  - (d) Compare and contrast between the single layer. Feed Forward Network and Multilayer Feed Forward Network.

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- (e) How the soft computing differ from the hard computing? Also illustrate the applications of the soft computing.
- (f) Compare and contrast between auto Associative Memory and hetro associative memory.
2. Attempt any four parts of the **5×4=20** following :
- (a) How will you train the Artificial Neural Network? Give proper justification for that.
- (b) Explain the factors which may affect the back propagation Neural Network.
- (c) What do you mean by Recurrent Networks? Illustrate the pros and cons of such network.
- (d) Briefly explain the Back propagation algorithm.
- (e) Illustrate the application areas of Neural Networks in detail.
- (f) Explain the effect of learning in Neural Network detail with the help of proper diagram.
3. Attempt any two parts of the **10×2=20** following :
- (a) What is Fuzzy system? Compare and contrast between Fuzzy logic and crisp logic in detail with proper example.
- (b) Explain the following:
- (i) Application areas of fuzzy logic
- (ii) Linguistic variables

- (c) What is the role of Defuzzification? Explain the types of Defuzzification in detail.
4. Attempt any two parts of the following : **10×2=20**
- (a) What is Fuzzy Quantifiers? Compare and contrast between absolute and relative quantifiers. Also illustrate Fuzzy Controller.
  - (b) Define membership function in detail. Also define its roles and applications.
  - (c) Explain the following.
    - (i) The Role of Fuzziness in Artificial Intelligence
    - (ii) Fuzzy Inference.
5. Attempt any two parts of the following : **10×2=20**
- (a) Explain the creation of offspring's in detail with example. Also write down the working principle of Genetic algorithm and application of Genetic algorithm.
  - (b) Draw the Evolutionary Cycle diagram and explain each component in detail.
  - (c) Explain the following.
    - (i) Fitness Evaluation
    - (ii) Mutation.
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