

Printed Pages—3

ECS088

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

PAPER ID : 2874 Roll No. 

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**B.Tech.**

(SEM. VIII) THEORY EXAMINATION 2011-12

**SOFT COMPUTING***Time : 3 Hours**Total Marks : 100***Note :—** (1) Attempt *all* questions.

(2) Make suitable assumptions wherever necessary.

1. Attempt any *four* parts of the following :— (5×4=20)
  - (a) Compare and contrast biological neuron and artificial neuron.
  - (b) Briefly discuss the common application domains of an artificial neural network.
  - (c) Discuss the architecture of multilayer perception.
  - (d) Explain supervised learning with a real time example.
  - (e) Draw the architecture of back propagation network and explain it.
  - (f) Explain the architecture of Kohonen self organizing network.

2. Attempt any *two* parts of the following :— (10×2=20)
- (a) Explain the fuzzy automata and languages in brief.
  - (b) Explain the difference between the randomness and fuzziness. Also discuss why we need fuzzy set theory.
  - (c) Write short notes on the following :—
    - (i) Fuzzy functions.
    - (ii) Fuzzy control methods.
3. Attempt any *two* parts of the following :— (10×2=20)
- (a) Genetic algorithms are usually suitable for solving maximization problems. Comment with suitable example.
  - (b) Rank space method is better than Rank method. Comment. Also explain the major difference between two methods.
  - (c) Let function  $f(x) = 2x - x^2/16$  be defined on the interval  $[0, 31]$ . Illustrate the use of genetic algorithm for determining the maximum of the function in the given interval.
4. Attempt any *two* parts of the following :— (10×2=20)
- (a) What are the different issues that have to be considered when designing a genetic algorithm for intelligent internet search ? Explain the definition of crossover and selection of the degree of crossover issues.
  - (b) Discuss the major applications of hybrid fuzzy genetic algorithm systems and neurofuzzy systems.

- (c) Explain the different membership functions available in Fuzzy Logic MATLAB toolbox.
5. Write short notes on any *four* of the following :—  
(5×4=20)
- (a) Fuzzy interface systems.
  - (b) Rule based structure identification.
  - (c) Simulated Annealing.
  - (d) Regression trees.
  - (e) Evolutionary computation.
  - (f) Classification techniques.