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

PAPER ID : 2874 Roll No. | | | | | | | | | | |

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 Kohnen 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.