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Roll No. .....

CS–801

B. E. (Eighth Semester) EXAMINATION, June, 2012

(Computer Science Engg. Branch)

SOFT COMPUTING

(CS – 801)

Time : Three Hours

Maximum Marks : 100

Minimum Pass Marks : 35

Note : Attempt any *five* questions. All questions carry equal marks.

1. (a) Explain production systems and requirements of good control strategy. 10

   (b) Explain knowledge representation. Discuss various approaches to knowledge representation. 10

Or

2. (a) Define breadth first search and depth first search procedure with examples. 10

   (b) What is non-monotonic reasoning ? Explain default logic, abduction, inheritance, the closed world assumption and circumscription. 10

3. (a) Differentiate between biological neuron and artificial neuron on the basis of structure and function of a single neuron. 10

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(b) Describe generalized delta rule for training of neural networks. How is training provided to output neurons and hidden layer neurons ? 10

Or

4. (a) Explain linear separability. Why can a single layer of perceptron not be used to solve linear inseparable problems ? 10

(b) Explain the error back propagation algorithm. Discuss its limitations and applications. 10

5. (a) What are the differences in learning approach of Counter Propagation Network (CPN) to feed forward network ? 10

(b) Explain the architecture of Adaptive Resonance Theory (ART) with the help of a schematic diagram. 10

Or

6. Write short notes on the following : 20

(i) Associative memory

(ii) Hopfield network

(iii) Recurrent network

(iv) Boltzmann machine

7. (a) Define the following operations on fuzzy set giving numeric example : 10

(i) Union

(ii) Intersection

(iii) Complement

(iv) Product

(v) Difference

(b) What is the motivation for using fuzzy logic in control applications ? Discuss. 10

Or

8. (a) What is fuzzy inference system ? Discuss various methods of fuzzy inference system. 10

   (b) What is fuzzy logic ? Explain its importance. Also write down its applications. 10

9. (a) Write down the differences and similarities between genetic algorithm and other traditional methods. 10

   (b) Explain the convergence criteria of genetic algorithm. 10

Or

10. (a) Explain the working principle of genetic algorithm. What do you understand by fitness function ? 10

    (b) Discuss the following : 10

    (i) Crossover and inversion

    (ii) Deletion and duplication