IT-802 B.E. VIII Semester Examination, June 2015

Soft Computing

Time: Three Hours Maximum Marks: 70

Note: Attempt one question from each unit. All questions carries equal marks.

Unit-I

1. a) What is meant by an activation function in an artificial neuron model? Describe the various activation function that are employed and compare their merits and demerits.7

b) Explain Artificial neural network architecture? With its applications? 7

2. a) Explain perceptron network training with and without biasby taking suitable examples.7

b) Explain unsupervised learning mechanism in contrast with a supervised learning mechanism. 7

Unit-II

3. a) Compare the similarities and difference between single layer and multilayer perceptrons and also discuss in what aspects multilayer perceptrons are advantageous over single layer perceptrons. 7

b) Discuss the application of neural network in data compression. - 7

4. a) Explain Radial Basis function network in brief. 7

b) Explain linear separability using an example IS XOR gate linear separable. 7 Unit-III

5.a) Explain the architecture of ART with diagram. 7

b) Derive expression for the weight updation involved in counter propagation. 7

6. a) Discuss how a neural network may be trained for a pattern recognition task. 7

b) Describe the self organizing map architecture and explain Kohonen model. 7

Unit-IV

7.a) What are crisp relations? How are they different from fuzzy relations? Explain various properties of crisp relation and fuzzy relation? 7

b) Explain neuro genetic hybrid and fuzzy genetic hybrid system. 7

8. a) Let X={a,b,c,d} and Y={ 1,2,3,4}

AndA= {(a,0),(b,0.8), (c,0.6), (d,l)} B = {(1,0.2), (2,1), (3 ,0.8), (4,1)} C = {(1,0), (2 ,0.4), (3,1), (4, 0.8)}

Determine:

i) If X is A thenY is B

ii) If X is A the Y is C else Y is B.

8 b) What is fuzzy quantifier? Explain. 6

Unit-V

9. a) Explain various types of crossover and mutation techniques. 7

b) Explain how GA can be applied to solve Travelling salesman problem. 7

10. a) Explain genetic algorithm in terms of individual, gene, fitness, population, encoding selection, crossover, mutation. 7

b) Discuss the application of GA in optimization problems.

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