Total No. of Questions : 8] [Total No. of Printed Pages :

Roll No. .....

MCTA–201

M. Tech. (C. T. A.) (Second Semester) EXAMINATION, June, 2010

SOFT COMPUTING

(MCTA–201)

Time : Three Hours.

Maximum Marks : 100

Minimum Pass Marks : 40

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

1. (a) Discuss the basic models of Artificial Neural Network.
   (b) Explain the following :
   (i) Supervised Learning
   (ii) Unsupervised Learning
   (iii) Reinforcement Learning
2. (a) What is Adaline ? Draw the model of an Adaline Network.
   (b) Discuss the important features of Kohenen self organizing maps.
3. (a) What is Hopfield net ? Explain the types of Hopfield net.
   (b) Compare the following :
   (i) Classical relation and fuzzy relation
   (ii) Constrained relation and non-constrained relation

4. (a) What are non-iterative fuzzy sets ? Explain
   (b) Consider the fuzzy sets :

$$\underset{\sim}{A} = \left\{\frac{1}{\text{low}} + \frac{0{\cdot}2}{\text{medium}} + \frac{0{\cdot}5}{\text{high}}\right\}$$

$$\underset{\sim}{B} = \left\{\frac{0{\cdot}9}{\text{positive}} + \frac{0{\cdot}4}{\text{zero}} + \frac{0{\cdot}9}{\text{negative}}\right\}$$

$$\underset{\sim}{C} = \left\{\frac{0{\cdot}1}{\text{low}} + \frac{0{\cdot}2}{\text{medium}} + \frac{0{\cdot}7}{\text{high}}\right\}$$

   (i) Find the fuzzy relation R for the Cartesian products of A and B.
   (ii) Find C oR using max-min composition.
   (iii) Find the fuzzy relation S between C and B using Cartesian product.
5. (a) Explain the operation and properties over a fuzzy relation.
   (b) What is meant by crossover point in fuzzy set ?
6. (a) What is meant by genetic algorithm ? Show the importance of genetic algorithm.
   (b) Explain the various operators involved in genetic algorithm.
7. (a) "Soft computing techniques give best solution to complex problems." Justify.
   (b) Discuss the application of genetic algorithm.
8. Write short notes on any *four* of the following :
   (i) Counterpropagation network
   (ii) Bidirectional associative memory
   (iii) Defuzzification
   (iv) Neuro fuzzy systems
   (v) Hamming net

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