16191(D)   − 0 DEC 2016

B. Tech 7th Semester Examination

Soft Computing (NS)

CS-415/IT-411(c)

Time : 3 Hours   Max. Marks : 100

The candidates shall limit their answers precisely within the answer-book (40 pages) issued to them and no supplementary/continuation sheet will be issued.

Note : Attempt five questions selecting at least one question each from section A, B, C & D. Section-E is compulsory.

SECTION - A

1. Explain the Artificial Neural Network Architecture. Write characteristics of neural network.   (20)

OR

2. Differentiate between Hebb Network and Perceptron Network. Also write their scope.   (20)

SECTION - B

3. Describe the training algorithm for pattern association. Name the different types and explain one of them in detail.   (20)

OR

4. State the training procedure of Kohonen layer and Grossberg layer in counter propagation network.   (20)

SECTION - C

5. Explain the concepts of non-specificity and fuzziness of fuzzy set with the help of suitable examples.   (20)

OR

6. Write Short notes on following:

   (a) Fuzzy Qualifier

   (b) Defuzzification Method   (20)

SECTION - D

7. (a) Differentiate between Genetic algorithm and Traditional algorithm.   (10)

   (b) What two requirements should a problem satisfy in order to be suitable for solving it by a GA?   (10)

OR

8. A budget airline company operates 3 planes and employs 5 cabin crews. Only one crew can operate on any plane on a single day, and each crew cannot work for more than two days in a row. The company uses all planes every day. A Genetic Algorithm is used to work out the best combination of crews on any particular day

   (a) Suggest what chromosome could represent an individual in this algorithm.

   (b) How many solutions are in this problem? Is it necessary to use Genetic Algorithms for solving it? What if the company operated more planes and employed more crews?   (20)

SECTION - E

9. Write Short Notes on Following:

   (a) Basic Models of Artificial Neural Network.

   (b) Adaptive Resonance Theory Network.

   (c) Fuzzy Relation.

   (d) Hybrid System.   (4×5=20)