Course Name : SOFT COMPUTING
Course Code : CSN403
Submission Date: 5 PM, 27-03-2018

[Email assignment at sudeshrani@pec.ac.in]

Total Marks: 40 Marks

Lab Assignment -III

Instructions:

- Use Matlab/Octave/Python/R language for implementation.
- The submission deadline is to be strictly followed, failing which you will be awarded zero marks.
- In case the assignment is found to be copied from Internet/Fellow colleagues, you will be awarded zero marks in the current assignment.
- File name must be in following format:
  - SID_Name_Assignment-III (doc file or pdf file)
- File Contents should be on following note:
  - Problem Statement
  - Code
  - Output Screenshots

1. Design and implement the ART1 neural network to analyze the performance of the net for various input orders of following training patterns:

   (1, 1, 0, 0, 0, 0, 1), (0, 0, 1, 1, 1, 1, 0), (1, 0, 1, 1, 1, 1, 0), (0, 0, 0, 1, 1, 1, 0), (1, 1, 0, 1, 1, 1, 0)

   Assume one output neuron initially. Analyze the performance of the network for different values of vigilance parameter such as 0.2, 0.6, 0.9.

2. Design and implement full counter-propagation network to map following digits to their binary representations. Use the Euclidean distance metric. Let the digits 0, 1, 2, ... , 7 be represented as

0: 1 0 0 0 0 0 0 0
1: 0 1 0 0 0 0 0 0
2: 0 0 1 0 0 0 0 0
3: 0 0 0 1 0 0 0 0
4: 0 0 0 0 1 0 0 0
5: 0 0 0 0 0 1 0 0
6: 0 0 0 0 0 0 1 0
7: 0 0 0 0 0 0 0 1

Corresponding binary representations:

0: 0 0 0
1: 0 0 1
2: 0 1 0
3: 0 1 1
4: 1 0 0
5: 1 0 1
6: 1 1 0
7: 1 1 1