Soft Computing --Assignment

1. Write a python script to realize 3 inputs bipolar NOR gate using perceptron.
2. Write a python script to train a 4-3-3-2 feed forward neural network using back propagation learning where the training pattern is {1,0,1,1} and output is (0,1}.
3. Write a python script to implement a 3-2-1 MADALINE neural network
4. Write a python script to implement Kosko's BAM to retrieve the associated pair.
5. Write python routine to generate the following parameterized fuzzy Membership Functions (MF) and visualize them for different parameter values:
   (a) Triangular MF, (b) Trapezoidal MF, (c) Gaussian MF, (d) Generalized Bell MF, (e) Sigmoidal MF
6. Write a python routine to compute the max-min composition of two fuzzy relations.
7. Write a python routine to compute the max-product composition of two fuzzy relations.
8. Write a python script to implement Fuzzy c-means and plot the clusters.
9. Write python script to implement a simple genetic algorithm with fitness proportional selection, one-point crossover, and bit-flip mutation
10. Implement Self-Organizing Map using Neural Network Toolbox of python

Note: Please mention following things to prepare the soft copy of the assignment copy (in a single PDF file per student).

1. ***Problem Statement; 2. Procedure; 3. Python Code; 4. Result; 5. Remarks***

Submission Deadline: 1st March,2021 (Monday)