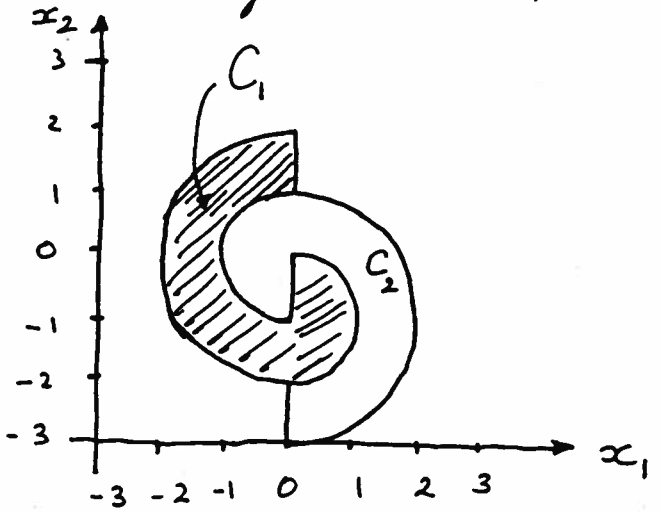
COEN 6331 **Problem Set 1**

The objective of this experiment is to study a two-dimensional classification problem that involves nonconvex decision regions. The distribution of pattern classes C_1 & C_2 is shown below. Class C_1 consists of pattern points inside the area marked C_1 and Class C_2 consists of pattern points inside the area marked C_2. The problem is to design a neural network classifier that decides whether an input pattern belongs to class C_1 or class C_2.



(i) Select a pattern set to be used for training. (ii) Select a pattern set to evaluate the performance of the network after training.

(iii) plot the error performance (learning curves) for the training phase.

(iv) Study the effects of the number of neurons in the hidden layer, the number of hidden layers, the learning rate, and momentum coefficients, data normalization, etc. on the performance and learning speed of the network.