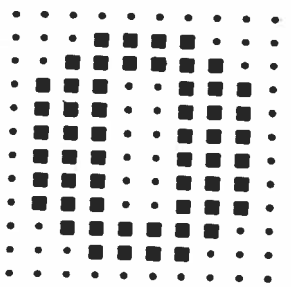
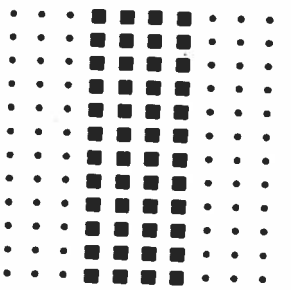
COEN 6331 Problem Set #3

Design a Hopfield network to recognize the following patterns as an associator.

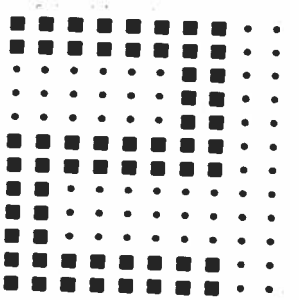
First, test the performance of the network in the recall mode using "clean" patterns. Next, test the performance of the net by corrupting the patterns with 25% noise, i.e. by randomly reversing 25% of pixels. Implement both synchronous and asynchronous learning procedures and comment on the performance. Can all the patterns be recalled correctly?



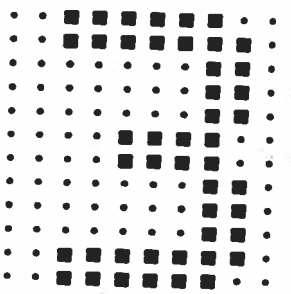
Pattern "0"



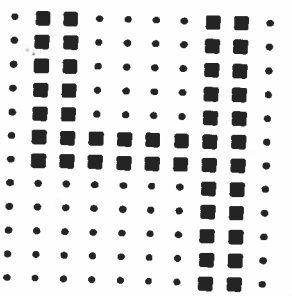
Pattern "1"



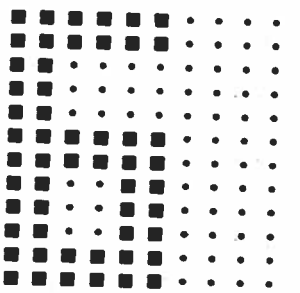
Pattern "2"



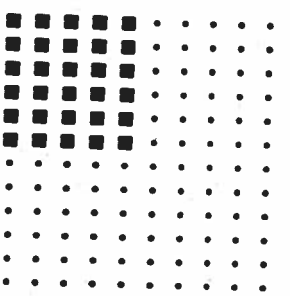
Pattern "3"



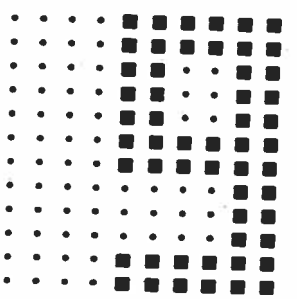
Pattern "4"



Pattern "6"



Pattern "7"



Pattern "9"