## HOWEWORK # 1(due 02/14/2002)
(2nd and 3rd questions will be graded, each 50 pts.)

0. Read and experience MATLAB NEURAL NET TOOLBOX MANUAL: preface and chapter 2 (Neuron Model and Network Architectures). Pay special attention to the notation given in preface page xxvi. Chapter 2 discusses the basics of neuron models.

1. a. Run demo program nnd2n1 with $w = 1$, $b = 2$ for various transfer functions and simply plot your observation.
    b. Experiment two-element neuron model
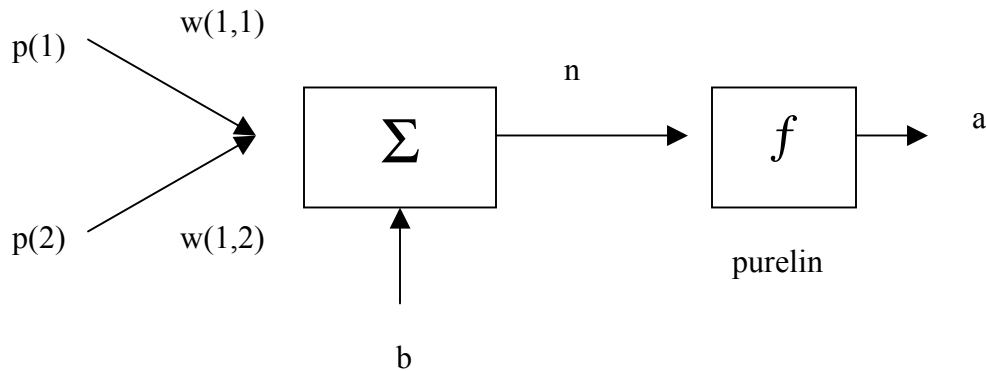
    Assume

    - any p values in the range [-1, 1]
    - matrix W with values in the range [-2, 2]
    - any b in the range [-2, 2]

    Calculate the output of the neuron function and check with demo program nnd2n2. Also calculate the output for a different F.

2. Assume a one input linear neuron [a = purelin(W*p + b)]. Simulate a static network with concurrent inputs by writing a matlab script that takes concurrent input vectors as a matrix, weight matrix W and bias vector b and should output A. (50 pts)

3. Assuming the simple neuron model in question 2 with sequential inputs. Simulate a dynamic network with sequential inputs. Modify your matlab script in question 2 so that it takes an input vector, weight matrix W and bias vector b and outputs A. (50 pts)

4. Similar to questions 2 & 3, write a matlab code that simulates a dynamic network with concurrent inputs.