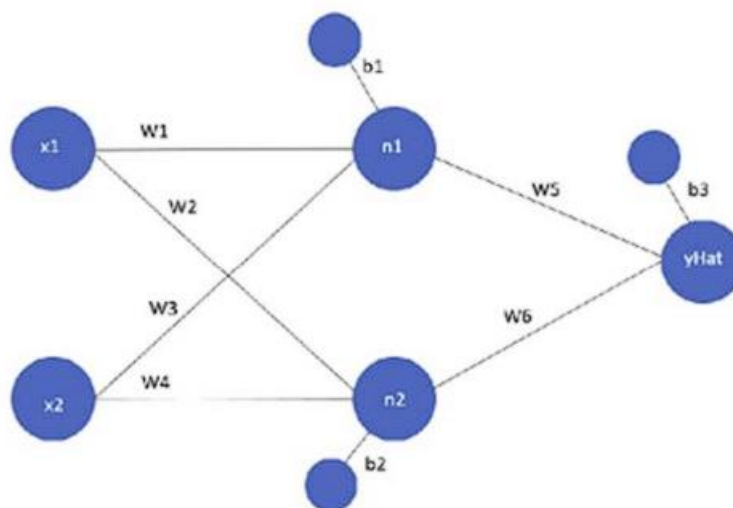**AI 2002 - Artificial Intelligence (Spring 2023)**
Assignment # 6

Topics Covered: ANN	Submission Deadline: **May 15, 2023, by 16.00 sharp**

Problem # 1:

Consider the neural network architecture for XAND function given below

1. Assume that the activation function is the sigmoid function. Initialize all the weights with 0.1. Write down the values of the weights after the first and the second iteration of Backpropagation algorithm run with the following examples:

X1	X2	Y
0	0	1
1	0	0
0	1	0
1	1	1

2. Consider a neural network that uses a function tanh instead of the sigmoid function. What will be the values of the weights after the first and second iteration in such a case?

Problem # 2:

Consider the neural network architecture for XAND function given below
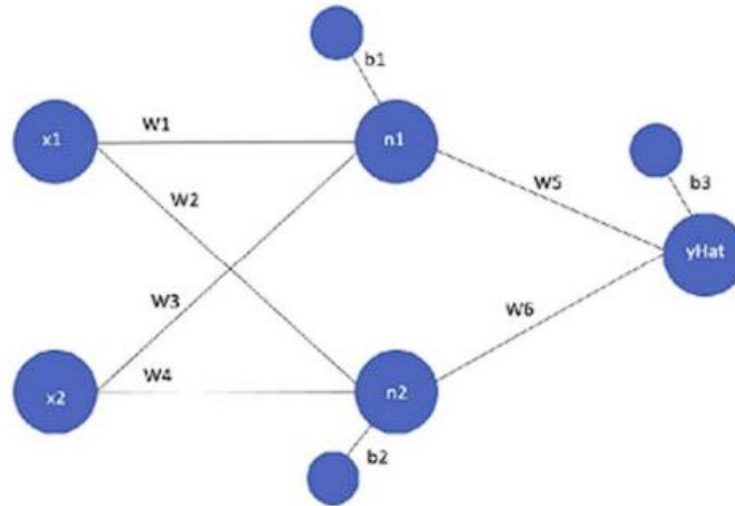
Implement this Neural Network with the same dataset given below. You may only use Numpy, Pandas or Matplotlib libraries and no other library is allowed.

1. Initialize all your weights to random values.
2. Make functions for Forward Propagation, as well as Back Propagation.
3. Pick an appropriate Epochs value and justify your choice in your Final Report.
4. Display the Errors value at every iteration in Graph Form.