VIMAL JYOTHI ENGINEERING COLLEGE

JYOTHI NAGAR, CHEMPERI – 670632, KANNUR, KERALA

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Assignment Cover Page

Name of the student :- Aira Alphonsa Roy	
PRN ...VML22CS022.....	Admission No..6380....
Subject Name :- Soft Computing	Subject Code:-
Assignment Title/No : 1	
Name of the faculty: Aswathi Miss	
Assignment Submitted on ...23/2/2026....	

Late submission rules : Max mark will reduced to 50% for 1-5 working day's delay, no mark will be awarded thereafter.

I am hereby confirming that this assignment is my own and I haven't adopted any unfair means in any steps of its preparation to enhance my performance in this assignment.

Date :...23/2/2026

Aira Alphonsa Roy
Sign with Name

Assignment subdivision	Maximum Mark	Marks awarded	Remarks
A			
B			
C			

Feed back/suggestions :

Name and sign of the faculty

Using the Hebb rule, find the weight req. to perform the following classification. Given that the vectors (1,1,1,1) & (-1,1,-1,-1) are the members of the same class (target 1) and the vector (1,1,1,-1) & (1,-1,-1,1) are the number of another class (target -1)

$w_i(new) = w_i(old) + x_i y$

$w_1 = w_2 = b = 0$

$b(new) = b(old) + y$

(1,1,1,1) $t=1$

$w_1(new) = 0+1\times1 = 1 \quad w_2 = 0+1\times1 = 1 \quad w_3 = 0+1\times1 = 1 \quad w_4 = 0+1\times1 = 1$

$b(new) = 0+1 = 1$

(-1,1,-1,-1) $t=1$

$w_1(new) = 1+-1\times1 = 0$

$w_2(new) = 1+1\times1 = 2.$

$w_3(new) = 0$

$w_4(new) = 0$

$b(new) = 1+1 = \underline{2}$

(1,1,1,-1) $t=1$

$w_1(new) = 0+1\times-1 = -1$

$w_2(new) = 2+1\times-1 = 1$

$w_3(new) = 0+1\times-1 = -1$

$w_4(new) = 0+-1\times-1 = 1$

$b(new) = 2+-1 = \underline{1}$

(1,-1,-1,1) $t=-1$

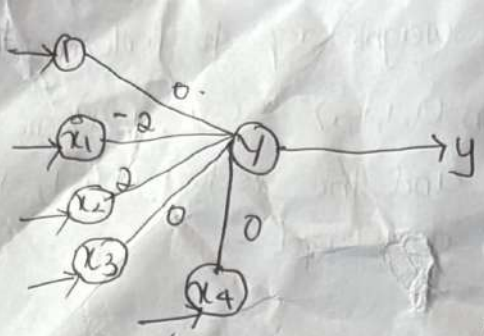
$w_1(new) = -1+1\times+1 = -2$

$w_2(new) = 1+-1\times-1 = \underline{2}$

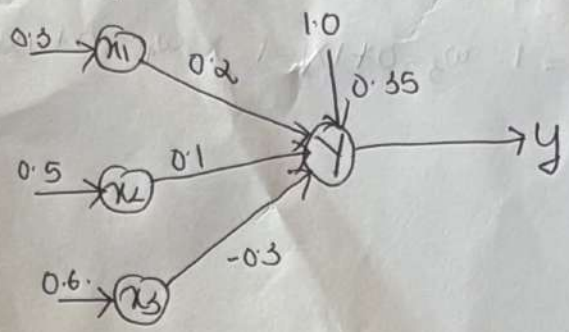
$w_3(new) = -1+-1\times+1 = 0$

$w_4(new) = 1+1\times-1 = 0$

$b(new) = 1+-1 = 0.$



b) Calculate the o/p of the neuron. for the following n/w using
1) Binary sigmoidal activation function
2) Bipolar sigmoidal activation function



1) $f(x) = \frac{1}{1+e^{-\lambda x}}$

$y_{in} = (1 \times 0.35) + (0.3 \times 0.2) + (0.5 \times 0.1) + (0.6 \times 0.3)$

$= 0.28$

$y = f(x)$

$= \frac{1}{1+e^{-0.28}} = 0.5695$

2) $f(x) = \frac{2}{1+e^{-\lambda x}} - 1$

$y = f(x)$

$= \frac{2}{1+e^{-\lambda x}} - 1 = 0.1390$