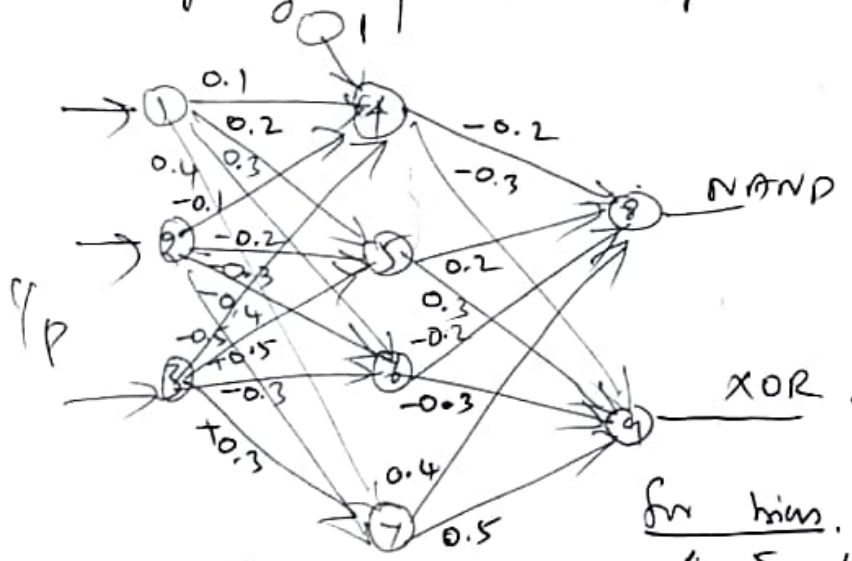
① Construct Perception, MLP and RBF for the following inputs samples. (Consider 4 nodes for RBF).

$\alpha = 0.8$

			NAND	XOR
0	0	0	1	0
0	0	1	1	1
0	1	0	1	1
1	1	1	0	0
1	1	0	0	1

② Apply k-means clustering alg and Self organised feature map.

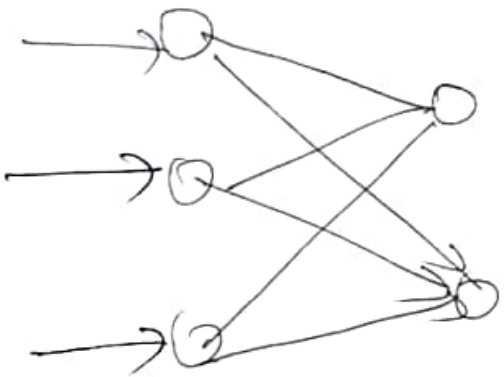
$$\begin{bmatrix} -0.1 & 0.2 & 0.3 \\ 0.5 & 0.2 & 0.3 \\ 0.1 & 0.2 & 0.3 \\ -0.1 & 0.2 & 0.3 \\ 0.5 & -0.5 & -0.3 \end{bmatrix} \begin{matrix} c_4 \\ c_5 \\ c_6 \\ c_7 \\ c_8 \end{matrix}$$



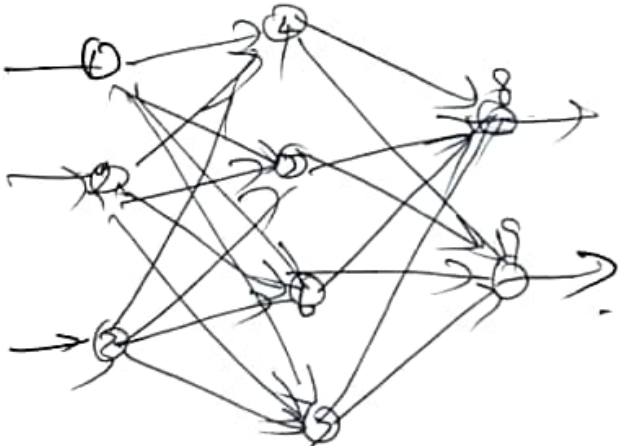
for MLP.

for bias.

4	5	6	7	8	9
0.2	0.5	-0.2	-0.5	0.1	0.2



for perceptron:



w_{40}	w_{50}	w_{60}	w_{59}	w_{69}	w_{69}
-0.1	0.2	0.3	-0.2	0.1	-0.2

w_{78}	w_{79}
-0.5	0.5

Update

① Apply K-means clustering

(0, 0, 0), (0, 0, 1), (0, 1, 0), (1, 1, 1), (1, 1, 0)

② SOFM

Initial weight matrix

$$\begin{bmatrix} -0.1 & 0.2 & 0.3 \\ 0.5 & 0.2 & 0.3 \end{bmatrix}$$

Use K-means input as the input to SOFM.

③ Perceptron ⇒ For convergence, update the bais as in MLP.

④ FOR XOR prove that Perceptron doesn't converge.
(Correct the truth table according to input.)

⑤ RBFN → no need back propagation.