Q1) *[6 Marks]*

A- Briefly, what is the main role of the following values in the perceptron:

- Learning rate (a).

- Threshold (?).

B- State five of the neural networks applications.

Q2) *[4 Marks]*

Modify the Hebb algorithm to design a Hebb net for a character recognition system. The designed net has to recognize *k-characters*. Each character (input vector) is an *n-tuple*.

Q3 *[5Marks]*

Apply the perceptron-learning algorithm to design a perceptron that perform the following classification problem and draw the final design for the net.

x_1	x_2	x_3	y
-1	-1	1	1
1	1	-1	-1
1	-1	1	-1
1	1	1	1

Good Luck

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