

**Zarka Private University**  
**Faculty of Science - Department of Computer Science**  
**First Examination – Second Semester 2002 - 2003**  
**Neural Networks 0306483**

**Date: 9 April 2003**

**Time: 1 Hour**

**Q1) [6 Marks]**

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

- Learning rate ( $\alpha$ ).
- Threshold ( $\theta$ ).

**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**