**HW4-2017–Backpropagation (Steepest Descent)**

**100pts**

**Note: This homework is very simple (about 0.5-1hr) and will teach you steepest descent very well.**

**Submit this doc filled with the questions remaining. Do not zip if you have just one or two files.**

1. We are trying to minimize a function F(**w**)= 4x2 –5x- 6xy + 10

Starting from the point **w0**=[x y] = [0 0], **use steepest descent algorithm** ***for TWO steps*** to find the local minimum of the function around this point. I.e. find **w1, w2** and corresponding F() values during the search. **You should use a “step size” alpha = 0.1**

*Answer:*

*F(w0) =................................... : Just to note at what F value we start*

$∇F$*= ……………………………………………………………………: Compute the gradient*

$ ∇F $| *w0 = ………………………………..........: This is the gradient* ***evaluated*** *at w0*

*w1=……………………………………………………………………………………..*

*F(w1) =……………………………………………… : just checking to see if we are indeed minimizing*

***Now do the 2nd step as well:***