ASSIGNMENT – 3a

Find the global minimum point and value for the function $f(x) = 3x^2 + 5e^{-y}+10$

- Do manual calculations for two iterations

Iteration 1:

Let, x=2, y=3 and $\eta = 0.01$

At x=2, df(x,y)/dx | x=2=6(2)=12

At y=3, df(x,y)/dy|y=3 = 5

Δ x = -0.01*12 = -0.12 and Δ y = -0.01 * 5 = -0.05

x=2-0.12=1.88 and y=3-0.05=2.95

This procedure repeats until gradient is near to zero and next iteration x=1.88 and y=2.95.

Iteration 2:

At x=2, df(x,y)/dx | x=2=6(1.88)=11.28

At y=3, df(x,y)/dy|y=3 = 5

Δ x = -0.01*11.28 = -0.1128 and Δ y = -0.01 * 5 = -0.05

x=2-0.1128=1.8872 and y=3-0.05=2.95

This procedure repeats until gradient is near to zero and next iteration x=1.8872 and y=2.95.