

## Assignment - 9

1)  $\{2, 4\}$ ,  $m=1$ ,  $c=-1$ ,  $\eta=0.1$ , epochs=2,  $r=0.9$

$$v_m = v_c = 0, n_s = 2$$

X	Y
0.2	3.4
0.4	3.8

2)  $it=1$

3) Sample=1

$$4) g_m = \frac{\partial E}{\partial m} = -(3.4 - 1(0.2) + 1) 0.2 \\ = -0.84$$

$$g_c = \frac{\partial E}{\partial c} = -(3.4 - 1(0.2) + 1) \\ = -4.2$$

$$5) v_m = 0.9(0) - 0.1(-0.84)$$

$$v_m = 0.084$$

$$v_c = 0.9(0) - 0.1(-4.2)$$

$$= 0.42$$

$$6) m = 1 + 0.084 = 1.084$$

$$c = -1 + 0.42 = -0.58$$

7) Sample =  $1+1=2$

8) if  $(2 > 2) \times$

$$\hookrightarrow 4) g_m = \frac{\partial E}{\partial m} = -(3.8 - 1.08(0.4) + 0.58) 0.4$$

$$= -(3.8 - 0.432 + 0.58)(0.4)$$

$$= -1.57$$

$$q_c = \frac{\partial E}{\partial m} = -(3.8 - 1.08(0.4) + 0.56)$$

$$= -(3.8 - 0.432 + 0.56)$$

$$= -3.928$$

$$5) V_m = 0.9(0.084) - 0.1(-1.57)$$

$$= 0.0756 + 0.157$$

$$= 0.23$$

$$V_C = 0.9(0.42) - 0.1(-3.92)$$

$$= 0.378 + 0.392 = 0.77$$

$$6) m = 1.084 + 0.23 = 1.314$$

$$C = -0.56 + 0.77 = 0.21$$

$$7) \text{Sample} = 2 + 1 = 3.$$

$$8) \text{if}(3 > 2) \checkmark$$

$$9) \text{it} = 1 + 1 = 2$$

$$10) \text{if}(2 > 2) \times$$

$$\hookrightarrow 3) \text{Sample} = 2$$

$$4) q_m = \frac{\partial E}{\partial m} = -(3.4 - 1.31(0.2) - 0.21)$$

$$= -(3.4 - 0.262 - 0.21)$$

$$= -2.93$$

$$q_C = \frac{\partial E}{\partial C} = -(3.4 - 1.31(0.2) - 0.21)$$

$$= -2.93$$



$$\begin{aligned}
 5) \quad V_m &= 0.9(0.23) - 0.1(-0.58) \\
 &= 0.207 + 0.058 \\
 &= 0.265
 \end{aligned}$$

$$\begin{aligned}
 V_C &= 0.9(0.74) - 0.1(-2.93) \\
 &= 0.693 + 0.293 \\
 &= 0.986
 \end{aligned}$$

$$6) \quad m = 1.314 + 0.265 = 1.579$$

$$C = 0.21 + 0.986 = 1.191$$

$$7) \quad \text{Sample} = 1 + 1 = 2$$

$$8) \quad \text{if } (2 \times 2) \times$$

$$\hookrightarrow 4) \quad q_m = \frac{\partial E}{\partial m} = -(3.8 - 1.57(0.4) - 1.19)(0.4)$$

$$= -(3.8 - 0.628 - 1.19)0.4$$

$$= -0.792$$

$$q_C = \frac{\partial E}{\partial C} = -(3.8 - 1.57(0.4) - 1.19)$$

$$= -1.982$$

$$5) \quad V_m = 0.9(0.26) - 0.1(-0.792)$$

$$= 0.234 + 0.079$$

$$= 0.313$$

$$V_C = 0.9(0.98) - 0.1(-1.982)$$

$$= 0.882 + 0.198$$

$$= 1.08$$

$$6) \quad m = 1.579 + 0.313 = 1.89$$

$$c = 1.196 + 1.08 = 2.27$$

$$7) \quad \text{Sample} = 2 + 1 = 3$$

$$8) \quad \text{if } (3 > 2) \checkmark$$

$$9) \quad it = 2 + 1 = 3$$

$$10) \quad \text{if } (3 > 2) \checkmark$$

$$11) \quad m = 1.89, \quad c = 2.27$$