**Nots on Perceptron**

**First Note -** In phase training of Perceptron, it is a supervised learning algorithm, where weights are adjusted to minimize error when ever the output does not match the desired output**.**  **Prove the following phrase *“If the output is 1 but should have been 0 then the weights are decreased on the active input link”.***

 **Sol:**

Note: here η=∝

***output =*** Oactual = 1

***target*** = Odesired = 0

E= Odesired - Oactual = (0-1) = -1

Adjust the weights

Wij new = Wijold  + η (Odesired - Oactual) Xi

Wij new = Wijold + η EXi

Wij new = Wijold  + η \*-1\*Xi

Wij new = Wijold  - η \*Xi

**Second Note -** In phase training of Perceptron, it is a supervised learning algorithm, where weights are adjusted to minimize error when ever the output does not match the desired output**.**  **Prove the following phrase:**

 ***“If the output is 0 but should have been 1 then the weights are increased on the active input link”***.

**Sol:**

Note: here η=∝

***output =*** Oactual = 0

***target*** = Odesired = 1

E= Odesired - Oactual = (1-0) = +1

Adjust the weights

Wij new = Wijold  + η (Odesired - Oactual) Xi

Wij new = Wijold + η EXi

Wij new = Wijold  + η \* 1 \*Xi

Wij new = Wijold  + η \*Xi

**Third Note**: In phase training of Perceptron, it is a supervised learning algorithm, where weights are adjusted to minimize error when ever the output does not match the desired output**.**  **Prove the following phrase**: ***“If the output is correct then no adjustment of weights is done”***.

**Sol:**

Note: here η=∝

***output =*** Oactual = 0, ***target*** = Odesired = 0

***output =*** Oactual =1, ***target*** = Odesired = 1

E= Odesired - Oactual = (0-0) = 0

E= Odesired - Oactual = (1-1) = 0

Adjust the weights

Wij new = Wijold  + η (Odesired - Oactual) Xi

Wij new = Wijold + η EXi

Wij new = Wijold  + η \*0\*Xi

Wij new = Wijold  + 0

Wij new = Wijold