

DECAY OF CURRENT

The current at any instant the decay is given by

$$I = I_0 e^{-\frac{R}{L}t}$$

Here,  $I_0 = \frac{E}{R} = \text{max. current}$  and

$\frac{L}{R}$  is called time constant

Evening

If  $t = \frac{L}{R}$

then,  $I = I_0 e^{-1} = \frac{I_0}{e}$   
 $= 0.368 I_0$

therefore, time constant may also be defined as the time taken by the current to decrease from maximum value of 0.368 times of its maximum value.

