

NAME: ABUBAKAR HANNY OSHIOZOKHAI

MAT NO: 18/ENG05/003

DEPT: MECHATRONICS

COURSE CODE: ENG 282

ABUBAKAR HANNY OSHIOZOKHAI
18/ENG051003
ENG 282

QUIZ

$$\frac{dT}{dt} = k(T-25)$$

$$\frac{dT}{T-25} = kt + c$$

$$T-25$$

$$T-25 = e^{kT+c}$$

$$T-25 = T_0 e^{kT}$$

$$T = T_0 e^{kT} + 25$$

At $t=0$ ms

$$10 = T_0 + 25$$

$$10 - 25 = T_0$$

$$T_0 = -15$$

$$T = -15e^{kT} + 25$$

After 5 ms $= t$

$$20 = -15e^{5k} + 25$$

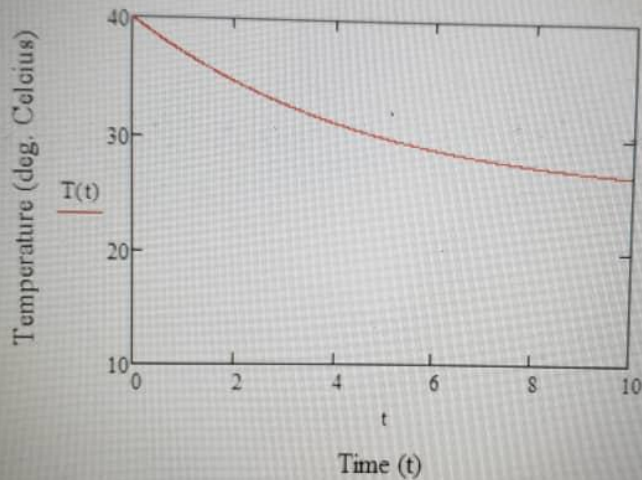
$$-5 = -15e^{5k}$$

$$0.33 = e^{5k}$$

$$-1.09 = 5k$$

$$k = -0.219$$

$$T = -15e^{-0.219t} + 25$$



Graph of Temperature against Time

gradient = (change in y) / (change in x)

```
- commandwindow
- clear
- clc
- close all
- format short g
- mdata=xlsread('onlinequizdata','fluiddata')
- x=mdata(1:2:250,1)
- y=mdata(1:2:250,2)
- plot(x,y)
- grid on
- grid minor|
```

I

Command Window

```
86
88
90
92
94
96
98
100
102
```