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18/ENG04/1074

ELECTRICAL ELECTRONICS

EIE 282

QUIZ

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

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

$\ln(T-25) = kt + C$

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

$T = T_0 e^{kt}$

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

$At = 0$

$10 = T_0 + 25$

$10 - 25 = T_0$

$T_0 = -15$

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

$20^\circ = -15e^{kT} + 25$

$\frac{-5}{-15} = \frac{-15e^{kT}}{-15}$

$0.33 = e^{ks}$

$-1.09 = ks$

$k = 0.219$

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

Initial time $T(0) = 10^\circ C$

After 5 min. $\rightarrow 20^\circ C$

$T_0 = 25^\circ C$

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

Command Window

```
   999.99
   999.99
   999.99
   999.99
   999.99
   999.99
   999.99
   999.99
   999.99
   999.99
     1000
     1000
     1000
     1000
     1000
```

Figure 1

File Edit View Insert Tools Desktop Window Help