

Nwaohiri Emmanuel Chukwuemeka
18/ENG041054
Electrical/Electronics
ENG 282

$$T_1 = 10^\circ\text{C}$$

$$T_2 = 20^\circ\text{C}$$

actual Temp = 25°C

$$\frac{dT}{dt} = -k(T - T_0)$$

where k , probability constant

$$\frac{dT}{dt} + kT = kT_0$$

@ dt

$$\frac{dT}{dt} + k(10^\circ) = k(25^\circ)$$

dt

$$\frac{dT}{dt} = k(25 - 10)$$

dt

$$\frac{dT}{dt} = 15k$$

dt

$$dT = 15k dt$$

$$\int \frac{dT}{k} = \int 15 dt$$

$$\frac{1}{k} \int dT = \int 15 dt$$

$$\frac{1}{k} T = 15t$$

after 5, $T = 20^\circ\text{C}$

$$\frac{1}{k} (20) = 15 \times 5$$

k

$$\frac{20}{k} = 75$$

$$Tsk = 20$$

$$k = \frac{20}{T}$$

$$T \times T = 15t$$

20

∴ where $T = 24.9$

$$T \times 24.9 = 15t$$

20

$$t = \frac{20}{15 \times 24.9}$$

20×15

$$t = 6.22 \text{ mins}$$


```
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

1000

900

800

700

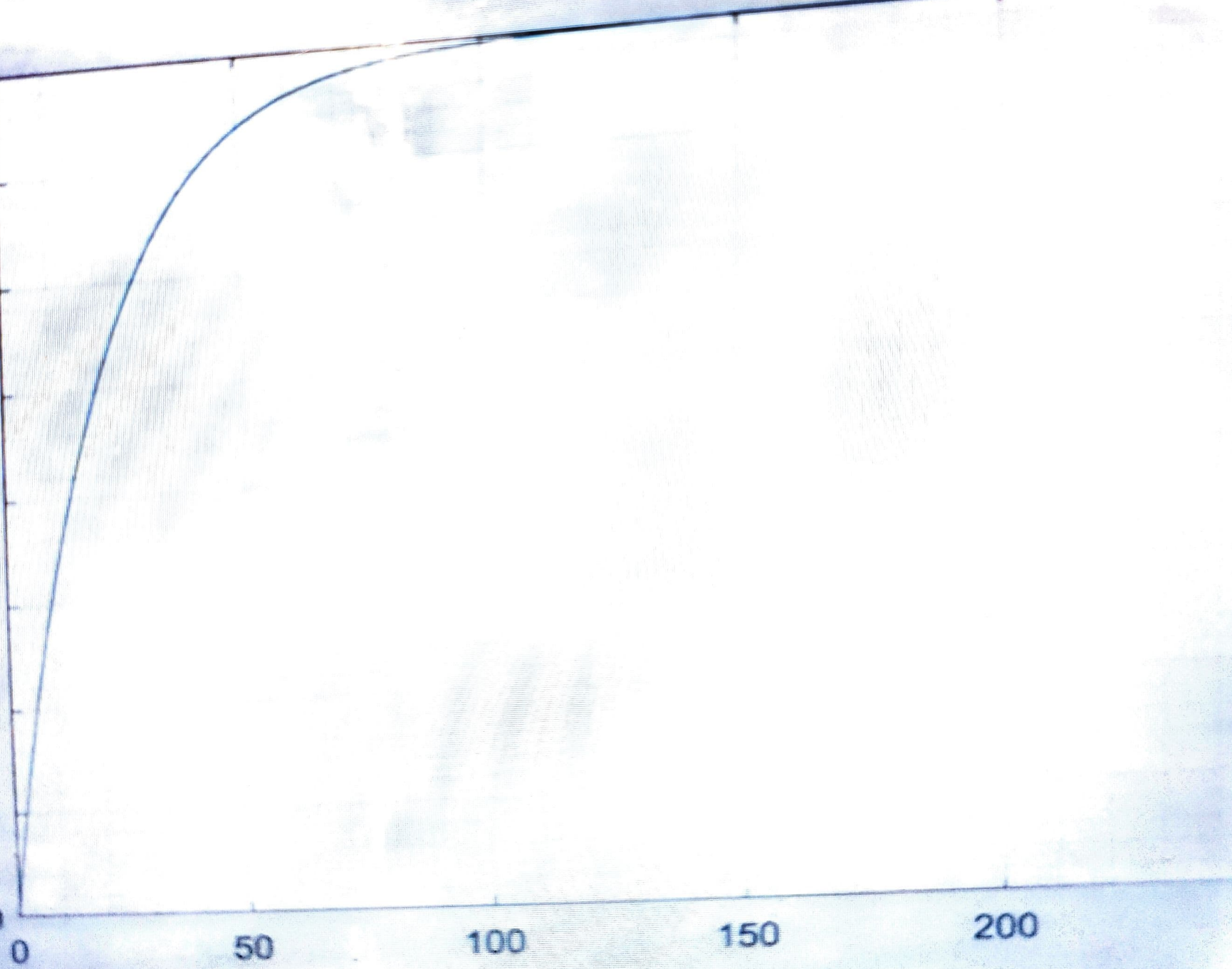
600

500

400

300

200



MAT

Ed

Y

1 -

2 -

3 -

4 -

5 -

6 -

7 -

8 -

9 -

10 -

11 -