

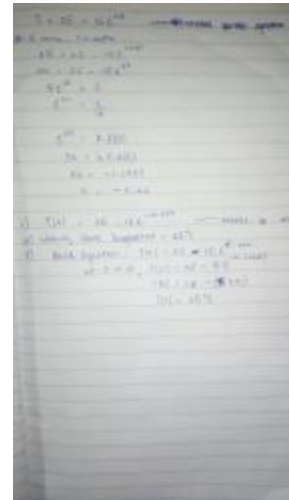
IGOMU ENE MICHELLE

CHEMICAL ENGINEERING

17/ENG01/013

ENGINEERING MATHEMATICS II ASSIGNMENT 5

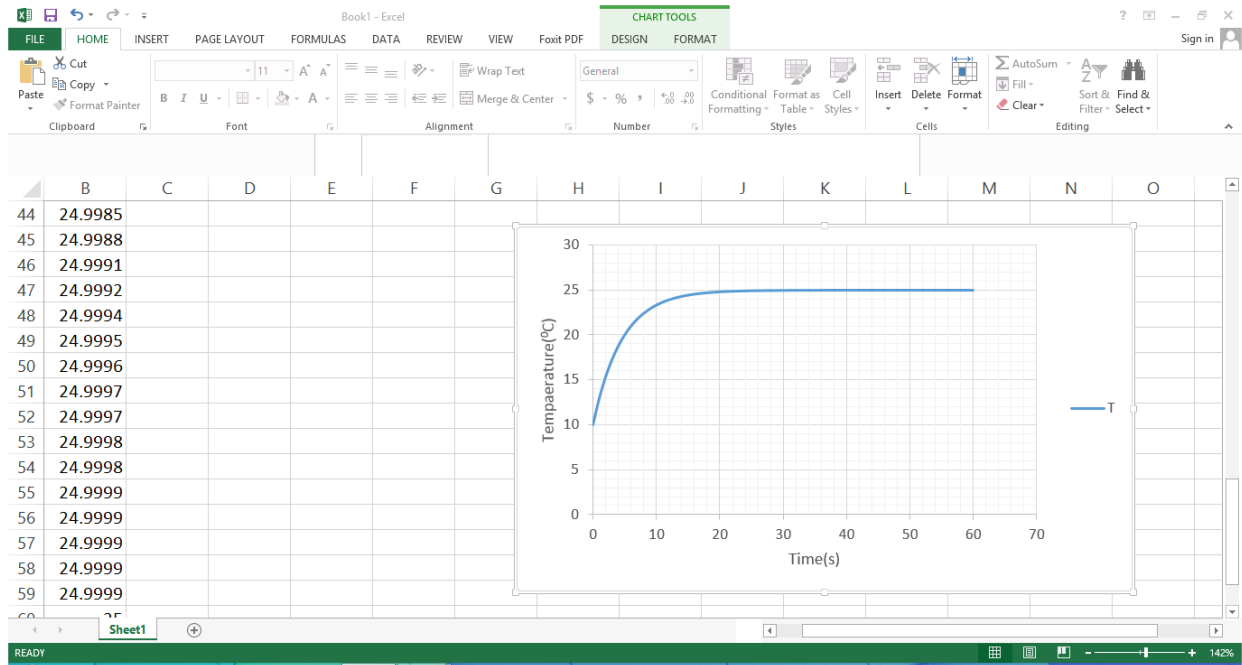
ii)



t	T
0	10
1	12.96222
2	15.33945
3	17.24723
4	18.77826
5	20.00693
6	20.99297
7	21.78428
8	22.41933
9	22.92896
10	23.33795
11	23.66618
12	23.92958
13	24.14097
14	24.31061
15	24.44675
16	24.55601
17	24.64369
18	24.71405
19	24.77052
20	24.81584
21	24.85221
22	24.88139
23	24.90482

24	24.92361
25	24.9387
26	24.9508
27	24.96052
28	24.96832
29	24.97457
30	24.97959
31	24.98362
32	24.98686
33	24.98945
34	24.99154
35	24.99321
36	24.99455
37	24.99563
38	24.99649
39	24.99718
40	24.99774
41	24.99819
42	24.99854
43	24.99883
44	24.99906
45	24.99925
46	24.9994
47	24.99952
48	24.99961
49	24.99969
50	24.99975
51	24.9998
52	24.99984
53	24.99987
54	24.9999
55	24.99992
56	24.99993
57	24.99995
58	24.99996
59	24.99997
60	24.99997

GRAPH



iii) commandwindow

```
clear
clc
close all
t=[0:1:60]
T=25-(15*exp(-0.22*t))
plot(t,T)
xlabel('t (s)')
ylabel('T(^oC)')
grid on
grid minor
```

OUTPUT

t=

Columns 1 through 20

0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19

Columns 21 through 40

20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39

Columns 41 through 60

40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59

Column 61

60

T =

Columns 1 through 12

10.0000 12.9622 15.3395 17.2472 18.7783 20.0069 20.9930 21.7843 22.4193 22.9290
23.3380 23.6662

Columns 13 through 24

23.9296 24.1410 24.3106 24.4468 24.5560 24.6437 24.7141 24.7705 24.8158 24.8522
24.8814 24.9048

Columns 25 through 36

24.9236 24.9387 24.9508 24.9605 24.9683 24.9746 24.9796 24.9836 24.9869 24.9895
24.9915 24.9932

Columns 37 through 48

24.9945 24.9956 24.9965 24.9972 24.9977 24.9982 24.9985 24.9988 24.9991 24.9992
24.9994 24.9995

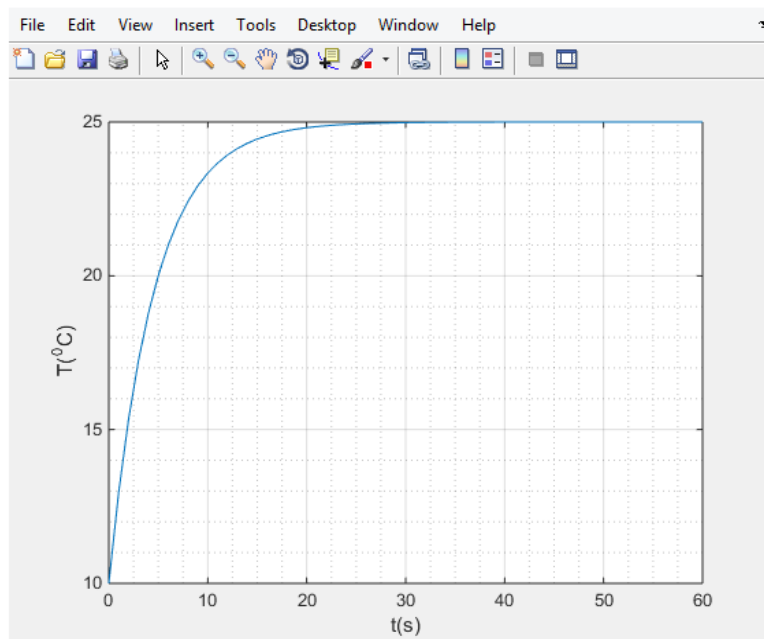
Columns 49 through 60

24.9996 24.9997 24.9997 24.9998 24.9998 24.9999 24.9999 24.9999 24.9999 24.9999
25.0000 25.0000

Column 61

25.0000

GRAPH



IV) Steady State Temperature= 25°C

V) Model Equation: $T(t) = 25 - 15e^{(-0.22t)}$

At $t \rightarrow \infty$

$$T(t)=25-0$$

$$T(t)=25^{\circ}\text{C}$$