

NAME: OGUNKUADE AYOBAMIDELE

MATRIC NO: 19/ENG02/079

DEPT: COMPUTER ENGINEERING

NUMBER 1:

Thanks For Coming

NAME: OGUNKWADE AYO

18/02/058

Computer Eng

1 120 gpd of water
150 lb of SIF \rightarrow Initial aggregation

50 gpd of brims (Self & water)
(1 + SIF) lb \rightarrow Inlet

30 gpd per unit min - out
Using balances law:

$$\left(\text{A Comstock rate of SIF with a system} \right) = \left(\text{Inlet rate of SIF into the system} \right) - \left(\text{Output rate of SIF with the system} \right)$$

Therefore $\frac{In}{\cancel{H}} = \text{min} - \text{out}$

$$\text{Min} = \frac{50 \text{ gpd}}{\cancel{\text{min}}} \times \frac{(1 + \text{SIF}) \text{ lb}}{\cancel{\text{gpd}}} = 50 (1 + \text{SIF}) \frac{\text{lb}}{\cancel{\text{min}}}$$

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$$M_{out} = \frac{30 \text{ g/d}}{1200 \text{ g/d}} = 0.025 = 2.5\% \text{ of } m$$

$$\frac{J_m}{A} \times \frac{V_b}{m \cdot n} = \frac{50(1 + \sin t)}{m \cdot n} = 2.5\% \text{ of } \frac{m \cdot b}{m \cdot n}$$

$$\frac{J_m}{A} = 50(1 + \sin t) - 0.025m$$

Collecting $-0.025m$ from Re Equation

$$\begin{aligned} \therefore -0.025m + 50(1 + \sin t) \\ = -0.025 \left(\frac{-0.025m + 50(1 + \sin t)}{-0.025} \right) \end{aligned}$$

$$\therefore \frac{J_m}{A} = 0.025(m - 2000(1 + \sin t))$$

Cross multiply

$$J_m - 20 \therefore J_m = -0.025(m - 2000(1 + \sin t)) A$$

Then divide it by $(m - 2000(1 + \sin t))$

$$J_m = -0.025 A$$

$$(m - 2000(1 + \sin t))$$

$$\int \frac{J_m}{(m - 2000(1 + \sin t))} = \int -0.025 A$$

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$$\int \frac{dm}{m-2000(1+\sin t)} = -0.025 \int dt$$

$$\ln[m-2000(1+\sin t)] = -0.025t + c$$

$$m-2000(1+\sin t) = e^{-0.025t + c}$$

$$m-2000(1+\sin t) = e^{-0.025t} e^c$$

$$m-2000(1+\sin t) = e^{-0.025t} m_0$$

$$m-2000(1+\sin t) = m_0 e^{-0.025t}$$

$$m = m_0 e^{-0.025t} + 2000(1+\sin t)$$

If was given that $f=0$ mins initially: therefore $m=150$

$$150 = m_0 e^{-0.025(0)} + 2000(1+\sin(0))$$

$$150 = m_0 e^{-0.025(0)} + 2000(1+\sin(0))$$

$$-m_0 = 2000 - 150$$

$$-m_0 = 1850$$

$$\text{J.S.B (1)}$$

$$= m_0 = -1850 //$$

NUMBER TWO

The screenshot displays the MATLAB R2017a environment. At the top, there is a standard Windows taskbar with icons for File Explorer, Mail, and other applications. Below that is the MATLAB application window, which includes a Paint toolbar at the very top with options like File, Home, View, Clipboard, Image, Tools, Shapes, Colors, and Edit colors. The main MATLAB interface has a ribbon with tabs for HOME, PLOTS, APPS, EDITOR, PUBLISH, and VIEW. The EDITOR tab is active, showing a script named 'ayor' in the Editor window. The script contains the following code:

```
1 - commandwindow
2 - clear
3 - clc
4 - close all
5 - format short g
6 - syms t
7 - y = (50/0.05) + ((50/1.0025)*sin(t)) + ((50*0.05/1.0025)*cos(t)) - (802.49*exp(-0.05*t))
8 - ym = 1000 - (800*exp(-0.05*t))
9 - T = 0:1:500
10 - T1 = T(2:2:500)
11 - T2 = T(1:2:500)
12 - Y = subs(y, T1)
13 - Ym = subs(ym, T2)
14 - mdata = ['t (minutes)', 'V (litres)'; Y, Ym]
15 - plot(T1, Y, T2, Ym)
16 - grid on
17 - grid minor
```

The Workspace window on the left shows the following variables:

Name	Value
mdata	2x2 cell
t	1x1 sym
T	1x501 double
T1	1x250 double
T2	1x250 double
y	1x1 sym
Y	1x250 sym
ym	1x1 sym
Ym	1x250 sym

The Command Window is visible at the bottom of the MATLAB interface.

HOME PLOTS APPS EDITOR

New Open Save Find Files Compare Go To Comment Insert
Print Find Indent

FILE NAVIGATE EDIT

C:\Users\David

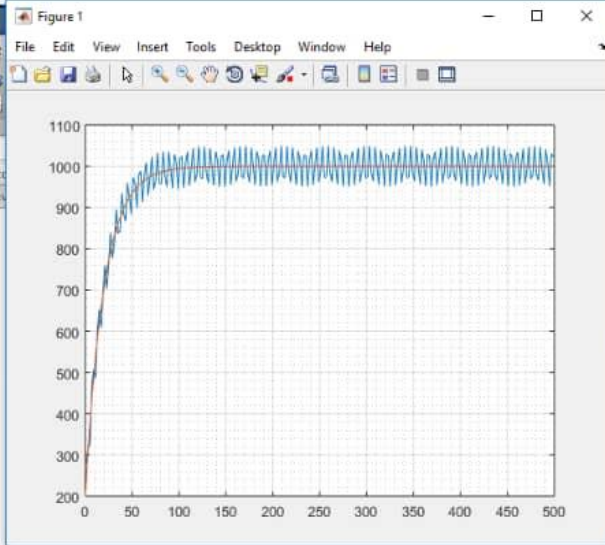
Current Folder

- .config
- .idea
- .jdlrc
- .PyCharmCE2019.2
- .vscode
- 3D Objects
- AppData
- Application Data
- Cisco Packet Tracer 7.0
- Contacts
- Cookies
- Desktop
- Documents
- Downloads
- Favorites

Details

Workspace

Name	Value
mdata	2x2 cell
t	1x1 sym
T	1x501 double
T1	1x250 double
T2	1x250 double
y	1x1 sym
Y	1x250 sym
ym	1x1 sym
Ym	1x250 sym



Search Documentation

xp (-0.05*t)

Command Window

script Ln 11 Col 5