

Udosen Ekemini John

17/eng04/070

Electrical/Electronics Engineering

Engineering Mathematics iv Assignment 4

```
1 function [dmdt] = chokes(t,m) 2
3 dmdt(1)= -((15/500)*m(1))+ ((5/1000)*m(2))+1;
4 dmdt(2)= ((15/500)*m(1))-((18/1000)*m(2))+ ((3/400)*m(3));
5 dmdt(3)= ((13/1000)*m(2))-((13/400)*m(3));
6
7 dmdt=dmdt';
8 end
```

```
1 commandwindow
2 clear
3 clc
4 closeall
5 width= [0:1:1200];
6 initial=[0 00];
7 [t,Q]=ode45(@chokes,width,initial);
8 figure(1)
9 subplot(3,1,1)
10 plot(t,Q(:,1),'go-')
11 xlabel('Time(min)')
12 ylabel('Volume(litres)')
13 legend('Tank 1', 'Location','South')
14 gridon
15 axistight
16 title('Figure 1:Dynamic Responses of theTanks')
17 subplot(3,1,2)
18 plot(t,Q(:,2),'b*--')
19 xlabel('Time(min)')
20 ylabel('Volume(litres)')
21 legend('Tank2', 'Location','South')
22 gridon
23 axistight
24 subplot(3,1,3)
25 plot(t,Q(:,3),'r+--')
26 xlabel('Time(min)')
27 ylabel('Volume(litres)')
28 legend('Tank 3', 'Location', 'South')
29 gridon
30 axistight
```

Figure 1: Dynamic Responses of the Tanks

