



# MATHS ASSIGNMENT copy

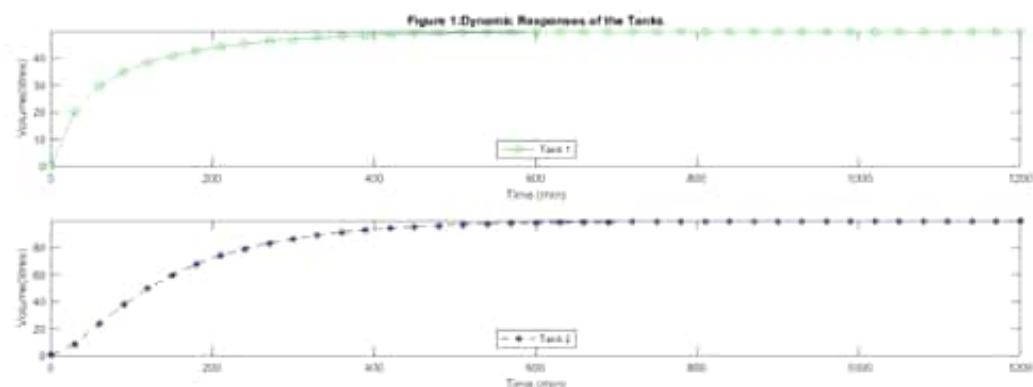


```

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
% dmdt=dmdt';
% end

% commandwindow
% clear
% clc
% close all
5 width= [0:1:1200];
% initial=[0 0 0];
% [t,Q]= ode45(@chokes,width,initial);
% figure(1)
% 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 grid on
15 axis tight
16 title('Figure 1:Dynamic Responses of the Tanks')
17 subplot(3,1,2)
18 plot(t,Q(:,2),'b*--')
19 xlabel('Time (min)')
20 ylabel('Volume(litres)')
21 legend('Tank 2', 'Location', 'South')
22 grid on
23 axis tight
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 grid on
30 axis tight

```





```

6
7 dmdt=dmdt';
8 end

9
10 commandwindow
11 clear
12 clc
13 close all
14 5 width= [0:1:1200];
15 initial=[0 0 0];
16 [t,Q]= ode45(@chokes,width,initial);
17 figure(1)
18 subplot(3,1,1)
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25 title('Figure 1:Dynamic Responses of the Tanks')
26 subplot(3,1,2)
27 plot(t,Q(:,2),'b*--')
28 xlabel('Time (min)')
29 ylabel('Volume(litres)')
30 legend('Tank 2', 'Location', 'South')
31 grid on
32 axis tight
33 subplot(3,1,3)
34 plot(t,Q(:,3),'r+--')
35 xlabel('Time (min)')
36 ylabel('Volume (litres)')
37 legend('Tank 3', 'Location', 'South' )
38 grid on
39 axis tight

```

