James evidence

17/eng06/049

Mechanical engineering

Maths

1 function [dmdt] = james(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

1. dmdt=dmdt';
2. end
   1. commandwindow
   2. clear
   3. clc
   4. closeall

5 width= [0:1:1200];

1. initial=[0 00];
2. [t,Q]=ode45(@james,width,initial);
3. figure(1)
4. subplot(3,1,1)

10 plot(t,Q(:,1),'go-')

1. xlabel('Time(min)')
2. ylabel('Volume(litres)')
3. legend('Tank 1', 'Location','South')
4. gridon
5. axistight
6. title('Figure 1:Dynamic Responses of theTanks')
7. subplot(3,1,2)

18 plot(t,Q(:,2),'b\*--')

1. xlabel('Time(min)')
2. ylabel('Volume(litres)')
3. legend('Tank2', 'Location','South')
4. gridon
5. axistight
6. subplot(3,1,3)

25 plot(t,Q(:,3),'r+--')

1. xlabel('Time(min)')
2. ylabel('Volume(litres)')
3. legend('Tank 3', 'Location', 'South')
4. gridon
5. axistight

