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**MATRIC NO. : 16/ENG05/015**

**DEPARTMENT: MECHATRONICS ENGINEERING**

**Course: ENG 382 - ENGINEERING MATHEMATICS**

1 function [dQdt] = Saviour(t,Q)

2

3 dQdt(1)= -((0.03)\*m(1))+ ((0.005)\*m(2))+1;

4 dQdt(2)= ((0.03)\*m(1))-((0.018)\*m(2))+ ((0.0075)\*m(3));

5 dQdt(3)= ((0.013)\*m(2))-((0.0325)\*m(3));

6

7 dQdt=dQdt';

8 end

* 1. commandwindow
  2. clear
  3. clc
  4. close all

5 width= [0:1:1200];

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

10 plot(t,dQ(:,1),'green-o')

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

18 plot(t,dQ(:,2),'blue--\*')

1. xlabel('Time(min)')
2. ylabel('Volume(Litre)')
3. legend('Tank2', 'Location','South')
4. grid on
5. grid minor
6. subplot(3,1,3)

25 plot(t,dQ(:,3),'red-.+')

1. xlabel('Time(min)')
2. ylabel('Volume(Litre)')
3. legend('Tank 3', 'Location', 'South')
4. grid on
5. grid minor