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MATRIC NO: 17/SCI14/016

DEPT: CHEMICAL ENGINEERING

COURSE CODE: ENG 382

COURSE TITLE: ENGINEERING MATHEMATICS IV

**ASSIGNMENT FOUR SOLUTION**

**FUNCTION COMMAND**

function dqdt = karmaodefun(t,q)

dqdt(1)= (-0.03\*q(1))+(0.005\*q(2))+1;

dqdt(2)= (0.03\*q(1))-(0.018\*q(2))+(0.0075\*q(3));

dqdt(3)= (0.013\*q(2))-(0.0325\*q(3));

dqdt=dqdt';

end

**SIMULATION**

commandwindow

clearvars

clc

close all

[t,q]= ode45('karmaodefun',[0: 45: 1200],[0 0 0]);

figure(1);

subplot(3,1,1)

plot(t,q(:,1),'o-g')

xlabel('Time (min)')

ylabel('Volume(Litre)')

legend('Tank 1')

grid on

grid minor

axis tight

subplot(3,1,2)

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

xlabel('Time (min)')

ylabel('Volume(Litre)')

legend ('Tank 2')

grid on

grid minor

axis tight

subplot(3,1,3)

plot(t,q(:,1),'+-r')

xlabel('Time (min)')

ylabel('Volume(litre)')

legend ('Tank 2')

grid on

grid minor

axis tight

