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MATRIC NUMBER: 17/ENG02/061

DEPARTMENT: COMPUTER ENGINEERING

STEP SIZE(Δt) = 40

FUNCTION FILE

function dQdt = assignment4(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 FILE

commandwindow

clearvars

clc

close all

[t,dQ]= ode45('assignment4',[0:40:1200],[0 0 0]);

figure('Name','Dynamic responses of the tanks')

subplot(3,1,1)

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

xlabel('Time(min)')

ylabel('Volume(Litre)')

legend('Tank 1', 'Location', 'South')

set(gca,'XGrid','on')

subplot(3,1,2)

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

xlabel('Time(min)')

ylabel('Volume(Litre)')

legend('Tank 2', 'Location', 'South')

grid on

subplot(3,1,3)

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

xlabel('Time min)')

ylabel('Volume(Litre)')

legend('Tank 3', 'Location', 'South')

grid on

OUTPUT

