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**Matric Number: 17/ENG05/023**

**Department: MECHATRONICS ENGINEERING**

ENG 382 ASSIGNMENT IV

USING THE STEP SIZE OF ∆t=40

Function File

function dQdt = chubi(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('chubi',[0:40:1200],[0 0 0]);

figure(1)

subplot(3,1,1)

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

xlabel('Time min)')

ylabel('Volume (Litre)')

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

grid on

grid minor

title('Figure 1:Dynamic Responses of the Tanks')

subplot(3,1,2)

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

xlabel('Time min)')

ylabel('Volume(Litre)')

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

grid on

grid minor

subplot(3,1,3)

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

xlabel('Time min)')

ylabel('Volume(Litre)')

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

grid on

grid minor

GRAPH

