**NASIR-AMEEN NASIR**

**17/ENG02/045**

**COMPUTER ENGINEERING**

**Assignment 4**

**SOLUTION**

**Function file**

function dydt = nassnass(t,y)

dydt(1)=-15/500\*y(1) + 5/1000\*y(2)+1;

dydt(2)= 15/500\*y(1) - 18/1000\*y(2)+3/400\*y(3);

dydt(3)= 13/1000\*y(2) - 13/400\*y(3);

dydt=dydt';

end

**Simulation file**

commandwindow

clearvars

clc

close all

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

figure(1)

subplot(3,1,1)

plot(t,q(:,1),'-go');

legend('Tank 1')

xlabel('Time (min)')

ylabel('Volume (litre)')

axis([0 1200 0 50])

title ('Dynamic responses of the tanks')

subplot(3,1,2)

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

legend('Tank 2')

xlabel('Time (min)')

ylabel('Volume (litre)')

grid on

axis([0 1200 0 100])

subplot(3,1,3)

plot(t,q(:,3),'--r+')

legend('Tank 3')

xlabel('Time (min)')

ylabel('Volume (litre)')

grid on

axis([0 1200 0 40])



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