**NAME: NTAMU TIMOTHY**

**MATRIC NUMBER:17/ENG01/018**

**DEPATMENT: CHEMICAL ENGINEERING**

**ENG 381**

4a.)

commandwindow

clc

close all

syms n(t)

D=diff(n)

eqn =(diff(n,t,2))-(diff(n,t))-(12\*n)==144\*t^3+12.5;

Ref1=D(0)==-0.5;

Ref2=n(0)==5;

Conds=[ref1 ref2];

sol=dsolve(ode,conds);

sol1=simplify(sol)

t=[0:0.1:1.5]

sol2=subs(sol1)

plot(t,sol2)

grid on

grid minor

axis tight

OUTPUT



4b.)

commandwindow

clc

syms y(t)x(t)

close all

Ode1=diff(y,t)-2\*x==exp(-2\*t)

Ode2=diff(x,t)+y==exp(-t)

Ode=[ode1,ode2]

conds=[y(0)==0,x(0)==0]

[yeqxeq]=dsolve(odes,conds)

fplot(yeq)

hold on

fplot(xeq)

grid on

grid minor

OUTPUT: TOGETHER



4bii) Separately

commandwindow

clc

clear

syms y(t)x(t)

close all

ode1=diff(y,t)-2\*x==exp(-2\*t)

ode2=diff(x,t)+y==exp(-t)

ode=[ode1,ode2]

conds=[y(0)==0,x(0)==0]

[yeqxeq]=dsolve(ode,conds)

figure(1)

fplot(yeq)

grid on

grid minor

figure(2)

fplot(xeq)

grid on

grid minor



1. Commandwindow

clear

Clc

syms wtka

ode=k\*exp(-a\*t)\*sin(5\*w\*t)\*cos(3\*w\*t)

Timo=laplace(ode)

Timon=simplify(Timo)

commandwindow

clear

clc

syms s

Timo=ilaplace((pi/(s^2)+(15\*pi\*s)+(24\*pi^3))

Timon=simplify(Timo)