NAME : PRATHAPANI SATWIKA

REG.NO. : 20BCD7160

EXPERIMENT NO. : 7 Solving ODE Using Laplace Transform

1 .

```
1 -    clc
2 -    clear all
3 -    syms f1(t) f2(t) s a
4 -    f1(t)= 1-t+2*(t^2);
5 -    f2(t)= 4*exp(-3*t)-10*sin(2*t);
6 -    fprintf('20BCD7160 Prathapani Satwika')
7 -    F1 = laplace(f1,t,s)
8 -    F2 = laplace(f2,t,s)
```

Command Window

```
20BCD7160 Prathapani Satwika
F1 =

(s - 1)/s^2 + 4/s^3


F2 =

4/(s + 3) - 20/(s^2 + 4)

fx >>
```

2.

```
clc
clear all
syms t s Y y(t) Dy(t)
Df=diff(y(t),t,1);
DDf=diff(y(t),t,2);
Eqn=DDf+2*Df==8*t;
LEQN=laplace(Eqn,t,s);
LT_Y=subs(LEQN,laplace(y,t,s),Y);
LT_Y=subs(LT_Y, y(0), 1);
LT_Y=subs(LT_Y, subs(diff(y(t), t), t, 0), 0);
ys=solve(LT_Y,Y);
fprintf('20BCD7160 Prathapani Satwika');
y=ilaplace(ys,s,t)
```

Command Window

```
20BCD7160 Prathapani Satwika
y =

2*t^2 - exp(-2*t) - 2*t + 2

fx >>
```

3.

```
clc
clear all
syms t s Y y(t) Dy(t)
Df=diff(y(t),t,1);
DDf=diff(y(t),t,2);
Eqn = DDf+16*y==16*sin(2*t);
LEQN = laplace(Eqn,t,s);
LT_Y =subs(LEQN,laplace(y,t,s),Y);
LT_Y=subs(LT_Y, y(0), 1);
LT_Y=subs(LT_Y, subs(diff(y(t), t), t, 0), 0);
ys=solve(LT_Y,Y);
fprintf('20BCD7160 Prathapani Satwika \n');
y = ilaplace(ys,s,t)
```

Command Window

```
20BCD7160 Prathapani Satwika

y =

cos(4*t) + (4*sin(2*t))/3 - (2*sin(4*t))/3

fx >>
```