NAME : PRATHAPANI SATWIKA

REG.NO. : 20BCD7160

EXPERIMENT NO. : 6 Ordinary Differential Equations

1.

```
clc
clear all
syms Q(t)
ode=diff(Q,t,1)+100*Q==10;
cond1 = Q(0) == 0;
fprintf('20BCD7160 Prathapani Satwika')
QSol(t)=dsolve(ode,cond1)
current=diff(QSol(t))
```

Command Window

```
20BCD7160 Prathapani Satwika
QSol(t) =

1/10 - exp(-100*t)/10


current =

10*exp(-100*t)

fx >>
```

2.

```
clc
clear all
syms x(t)
ode=diff(x,t,2) + 8*diff(x,t,1) + 10*x == 48*sin(10*t);
m = diff(x,t,1);
cond1 = x(0)==0;
cond2 = m(0)==0;
Array = [cond1, cond2];
fprintf('20BCD7160 Prathapani Satwika')
position(t) = dsolve(ode,Array)
```

Output :

20BCD7160 Prathapani Satwika

position(t) =

(4*6^(1/2)*exp(4*t + 6^(1/2)*t)*exp(-t*(6^(1/2) + 4))*(10*cos(10*t) - sin(10*t)*(6^(1/2) + 4)))/((6^(1/2) + 4)^2 + 100) - (4*6^(1/2)*exp(4*t - 6^(1/2)*t)*exp(t*(6^(1/2) - 4))*(10*cos(10*t) + sin(10*t)*(6^(1/2) - 4)))/((6^(1/2) - 4)^2 + 100) - (20*6^(1/2)*exp(t*(6^(1/2) - 4)))/(4*6^(1/2) - 61) + (20*6^(1/2)*exp(-t*(6^(1/2) + 4))*(488*6^(1/2) - 3817))/((4*6^(1/2) - 61)^2*(4*6^(1/2) + 61))

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