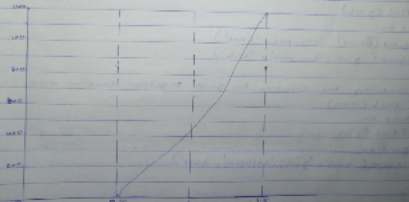


```

11) P4100/010
C++
1) Command window
clc
clear
close all
syms x t
a = 1/10;
d1 = (diff(x,t)) - a*x; % (dx/dt) = -ax
cond1 = D1 == 0; % x=0
cond2 = x == 1; % x=1
conds = [cond1, cond2];
dsolve(d1, conds);
fplot('x(t)', [0, 1]);
axis([0 1 0 1]);
title('Plot of x(t) vs t');
grid on

```



```

12) Command window
clc
clear
close

syms x t y
eq1 = diff(x,t) - x^2 == exp(-2*t);
eq2 = diff(y,t) - y == exp(-2*t);
conds = [x(0) == 0, y(0) == 0];
ans = dsolve(eq1, eq2, conds);
xSol = ans.x;
ySol = ans.y;
figure;
plot(xSol, 'r');
hold on;
plot(ySol, 'b');
title('Plot of x(t) and y(t) vs t');
grid on;

```

1) Visualizing the solution on graph separately (using hold on)

```

figure;
plot(xSol, 'r');
hold on;
plot(ySol, 'b');
title('Plot of x(t) and y(t) vs t');
grid on;

```

2) Visualizing the solution on graph together (using hold on)

```

figure;
plot(xSol, 'r');
plot(ySol, 'b');
title('Plot of x(t) and y(t) vs t');
grid on;

```

```

13) Some Lab - Use Program to Convert
f(s) = 1/(s^2 + 4s + 4)
and find its inverse Laplace transform.

1) Command window
2) clear
3) clc
4) syms s u
f = 1/(s^2 + 4*s + 4);
a2 = 2; % inverse Laplace transform of f(s)
b) laplace(a2);

Command window
clear
clc
syms s u
u = (1/4) * (exp(-2*t) * (1 - cos(2*t))) / (1/4);
(1/4) * (exp(-2*t) * (1 - cos(2*t)))

```