**Lab-2**

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**TASK 1:**

Code:

N=7; %last digit = 7

B = N + 5;

Fs = 15\*B;

Ts=1/Fs

t=-0.5:Ts:0.5

m = 2\*B\*sinc(2\*B\*t);

plot(t,m);

title('Sinc Pulse');

xlabel('Time(s)');

ylabel('m(t)');

Output:

Graphical user interface, chart, histogram

Description automatically generated

**TASK 2:**

Code:

f=4;

hold on

for k=1:3

f=f\*10^3;

w = 2 \* pi \* f;

Roc = 280;

ac = 0.0969;

L0 = 587.3 \* 10^-6;

Linfi = 426 \* 10^-6;

b = 1.385;

fm = 745900;

Cf = 50 \* 10^-9;

Gf = 0;

Rf = (Roc^4 + ac \* f^2)^0.25;

Lf = (L0 + Linfi \* (f / fm)^b) / (1 + (f / fm)^b);

y = ((Rf + w \* Lf \* 1i) \* (Gf + w \* Cf \* 1i))^0.5;

d = 0:500:5000;

d(1) = 10;

for j = 1:11

x = d(j) / 1000;

Hf(j) = 10\*log(abs(exp(-y \* x)));

end

plot(d,Hf)

end

hold off

Output:

Chart, line chart

Description automatically generated

**TASK 3:**

unique\_chars = {'P','R','A','N','Y',' ','S','I','M','J','E'};

prob = [1/15,1/15,3/15,1/15,2/15,1/15,1/15,2/15,1/15,1/15,1/15];

dict = huffmandict(unique\_chars,prob);

name="PRANAY SIMEJIYA";

code=huffmanenco(name,dict);

decode=huffmandeco(code,dict);

**TASK 4:**

Code:

A=0.1;

f1 = 440;

f2=480;

Fs=15\*480;

Ts=1/Fs;

t=0:Ts:2;

ringer\_tone = A\*(sin(2\*pi\*f1\*t)+sin(2\*pi\*f2\*t))

while(1)

sound(ringer\_tone);

pause(4);

end