Task A

A = 3;

phi = -1/4\*pi;

w=2\*pi\*5;

f=5;

lam = [-3 -2 -0.5 0 0.5 1];

t=(0:0.01:1)';

for ii= 1:length(lam)

y(:,ii)=A.\*exp(lam(ii).\*t).\*cos(w.\*t+phi)

end

plot(t,y)

Graphical user interface, histogram

Description automatically generated

Task B

**Λ = -0,5**

**Λ = 1/RC 🡺 -0,5=1/T => T =2 (time constant)**

**RC=time constant**

**Y(t) = A\*e^Λt**

Task C

A = 3;

phi = -1/4\*pi;

w=0;

f=5;

lam = -0.5;

t= (0:10);

y= A.\*exp(lam.\*t).\*cos(w.\*t+phi);

plot(t,y)

Graphical user interface

Description automatically generated

Task D

A = 3;

phi = -1/4\*pi;

w=2\*pi\*5;

f=5;

lam = -0.5

tau = 2

t= (0:10)

y= A.\*exp(lam.\*t).\*cos(w.\*t+phi)

y2= A.\*exp(lam.\*tau).\*cos(w.\*tau+phi)

plot(t,y,tau,y2,'o')

Graphical user interface

Description automatically generated with medium confidence

Task E

0.78/2.12 = 0.37

1-0.37 = 0.63 🡺 to get % 🡺 0.63\*100 = 63%

Y1 coordinate = 2.12

Y2 Coordinate = 0.78



Tasks F,G,H,I

A=3;

phi=0;

n=0:10;

subplot(2,2,1);%f

OMEGA=pi;

a=2/3;

y=A\*a.^n.\*cos(OMEGA\*n+phi);

stem(n,y)

subplot(2,2,2);%g

OMEGA=0;

a=3/2;

y=A\*a.^n.\*cos(OMEGA\*n+phi);

stem(n,y)

subplot(2,2,3);%h

OMEGA=pi;

y=A\*a.^n.\*cos(OMEGA\*n+phi);

stem(n,y)

subplot(2,2,4);%i

a=2/3;

OMEGA=0;

y=A\*a.^n.\*cos(OMEGA\*n+phi);

stem(n,y)

Chart, histogram

Description automatically generated

Diagram, schematic

Description automatically generatedTask J

Task K

A = 3;

phi = -0.5\*pi;

w=2\*pi\*f;

f=20;

lam = -5;

t=0:0.001:1;

Y=3.\*exp(-1j\*0.5\*pi);

s= -5+40\*pi\*1j;

subplot(2,1,1)

plot(t,real(Y.\*exp(s.\*t)))

Graphical user interface, application

Description automatically generated

Task L

A = 3;

phi = -0.5\*pi;

w=2\*pi\*f;

f=20;

lam = -5;

t=0:0.001:1;

Y=3.\*exp(-1j\*0.5\*pi);

s= -5+40\*pi\*1j;

y=A.\*exp(lam.\*t).\*cos(w.\*t+phi);

subplot(2,1,1)

plot(t,real(Y.\*exp(s.\*t)))

subplot(2,1,2)

plot(t,y)

Graphical user interface

Description automatically generated