**American International University-Bangladesh (AIUB)**

**Department of Computer Engineering**

COE 3201: Data Communication Laboratory

**Lab Report 1**

**Title: Introduction to MATLAB**

**Supervised By**

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## Submitted By

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**Ans the questions**

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**a**

A1 = 22;  
A2 = 41;  
j1\_deg = 74;  
j2\_deg = 30;  
CDEF= 4715; % Frequency in Hz

% Convert degrees to radians  
j1 = deg2rad(j1\_deg);  
j2 = deg2rad(j2\_deg);

 % Time vector  
T = 1 / f; % Period of the wave  
t=-1:0.01:+1; % Adjust the time range and number of samples as needed

% Generate x1(t) and x2(t)  
x1 = A1 \* cos(2 \* pi \* f \* t + j1);  
x2 = A2 \* cos(2 \* pi \* f \* t + j2);

**b**

A diagram of a signal plot

Description automatically generated

A1=4;

A2=5;

f=17;

j1=0.192;

j2=0.524;

t=-1:0.01:+1;

x1=A1\*sin(2\*pi\*f\*t+j1);

subplot(2,1,1)

plot(t,x1)

xlabel('Time in Second');

ylabel('Amplitude in Volt');

title('Signal x1(t)');

x2=A2\*sin(2\*pi\*f\*t+j2);

subplot(2,1,2)

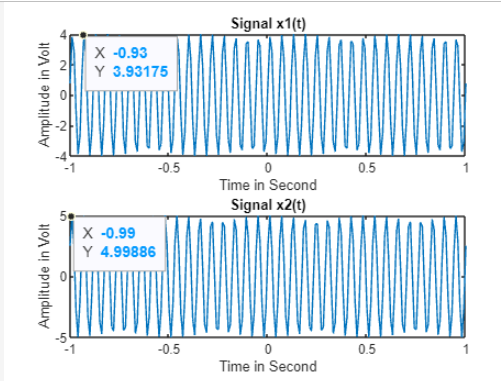
plot(t,x2)

xlabel('Time in Second');

ylabel('Amplitude in Volt');

title('Signal x2(t)');

c



x1(t) at t = 0: 3.926  
Amplitude:4  
Phase (radians): 0.192  
   
x2(t) at t = 0: 4.329  
Amplitude: 5  
Phase (radians): 0.524

**d**

A diagram of a signal plot

Description automatically generated

A1=4;

A2=5;

f=17;

j1=0.192;

j2=0.524;

t=-1:0.01:+1;

x1=A1\*sin(2\*pi\*f\*t+j1);

subplot(3,1,1)

plot(t,x1)

xlabel('Time in Second');

ylabel('Amplitude in Volt');

title('Signal x1(t)');

x2=A2\*sin(2\*pi\*f\*t+j2);

subplot(3,1,2)

plot(t,x2)

xlabel('Time in Second');

ylabel('Amplitude in Volt');

title('Signal x2(t)');

subplot(3, 1, 3);

bar([abs(x1), abs(x2)]);

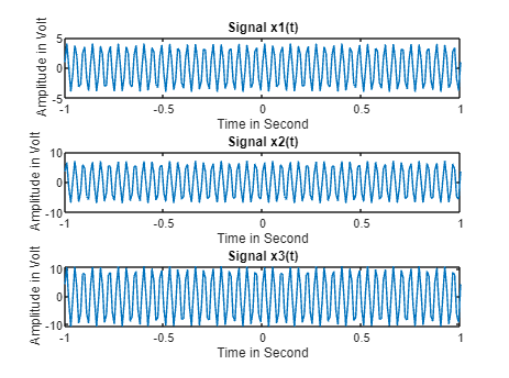
title('Amplitudes at t = 0');

ylabel('Amplitude');

xticklabels({'x1(t)', 'x2(t)'});

sgtitle('Signal Plots and Amplitudes at t = 0');

**e**



A1=4;

A2=5;

f=17;

j1=0.192;

j2=0.524;

t=-1:0.01:+1;

x1=A1\*sin(2\*pi\*f\*t+j1);

subplot(3,1,1)

plot(t,x1)

xlabel('Time in Second');

ylabel('Amplitude in Volt');

title('Signal x1(t)');

x2=A2\*sin(2\*pi\*f\*t+j2);

subplot(3,1,2)

plot(t,x2)

xlabel('Time in Second');

ylabel('Amplitude in Volt');

title('Signal x2(t)');

x3=x1+x2;

subplot(3,1,3)

plot(t,x3)

xlabel('Time in Second');

ylabel('Amplitude in Volt');

title('Signal x3(t)');

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|  |

**f**