Faculty of Engineering & Technology
Electrical & Computer Engineering Department

ENEE2312

Assignment No.1

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Problem (1):

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Untitled.m

```
t = -8:0.05:18;
x1 = 2 .* rectangularPulse((5 - t) / 4) + rectpuls((t + 3) / 2) - heaviside((t - 12)/2) .*((t - 12)
x2 = 2 .* rectangularPulse((t-4)/6) - heaviside((t-6)/2) .* ((t-6)/2) + heaviside(6-t) .* (6-t);

subplot(2,1,1)
plot(t, x1, 'r')
title('Problem 1')
xlabel('Time')
ylabel('x1(t)')

subplot(2,1,2)
plot(t, x2, 'b')
xlabel('Time')
ylabel('x2(t)')
```

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Untitled.m

```
 - t) / 4) + rectpuls((t + 3) / 2) - heaviside((t - 12)/2) .*((t - 12)/2) + 2 * heaviside(t - 16);
-4)/6) - heaviside((t-6)/2) .* ((t-6)/2) + heaviside(6-t) .* (6-t);
```

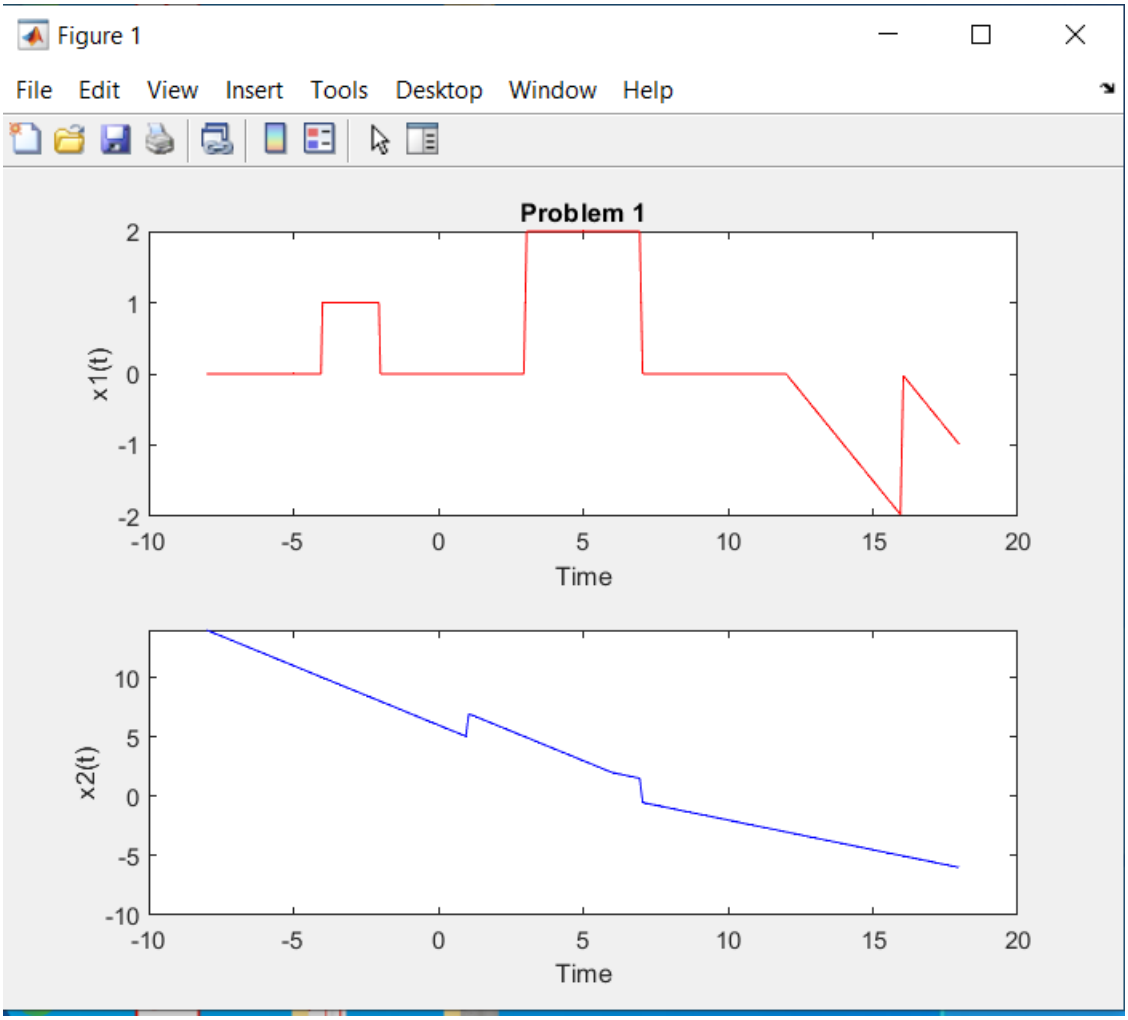
Figure 1
File Edit View Insert Tools Desktop Window Help
Problem 1
x1(t)
Time
x2(t)
Time

Problem (2):

A)

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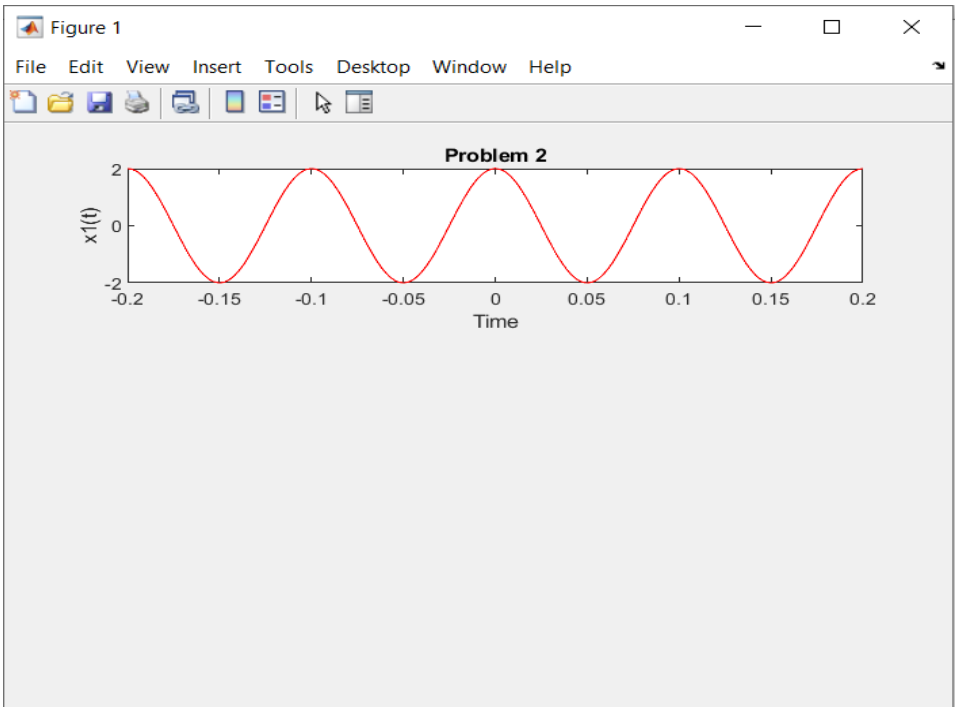
Untitled.m

```
1 —    t = -0.2:0.0001:0.2;
2 —    x1 = 2 .* cos(20*pi.*t);
3
4 —    subplot(3,1,1)
5 —    plot(t, x1, 'r')
6 —    title('Problem 2')
7 —    xlabel('Time')
8 —    ylabel('x1(t)')
9
10
```



B)

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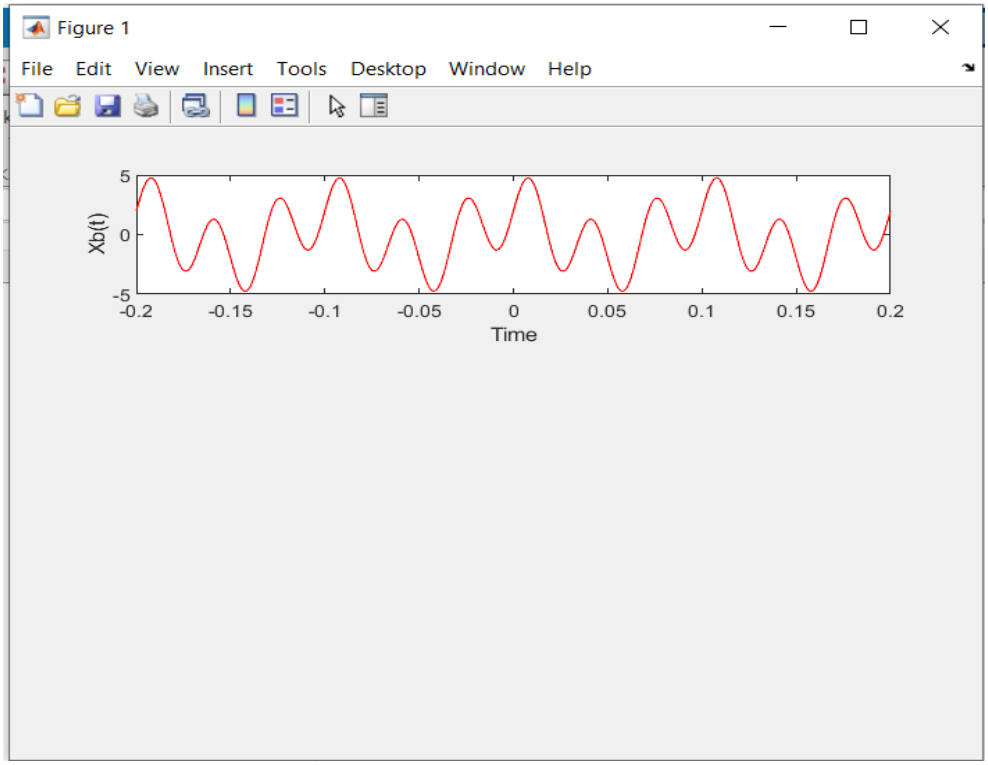
```
t = -0.2:0.0001:0.2;
x1 = 2 .* cos(20*pi.*t);


x2 = 3 .* sin(60*pi.*t);
Xb = x1 + x2;

subplot(3,1,1)
plot(t, Xb, 'r')
xlabel('Time')
ylabel('Xb(t)')


```



C)

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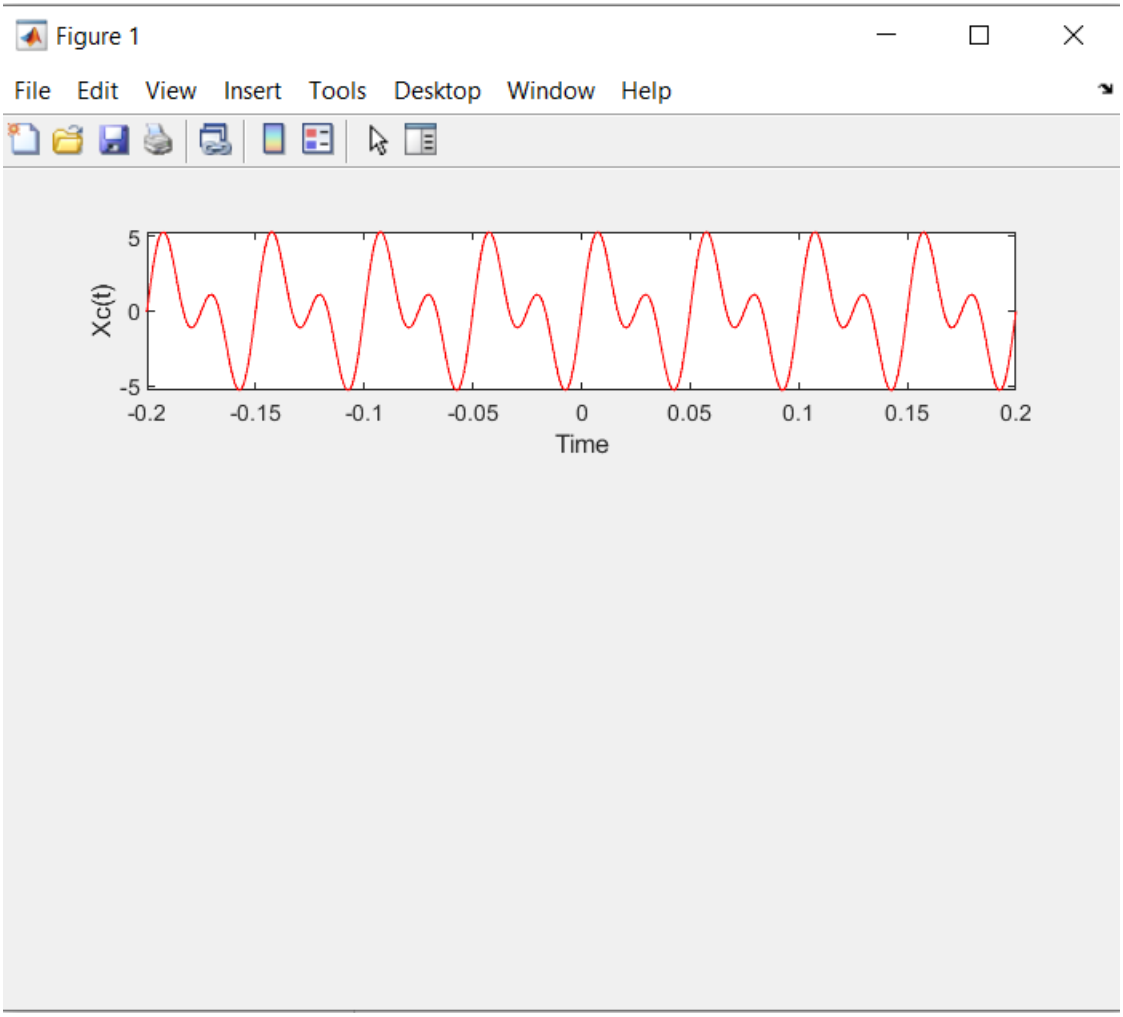
```
1 -    t = -0.2:0.0001:0.2;
2 -    x1 = 2 .* cos(20*pi.*t);
3 -    x2 = 3 .* sin(60*pi.*t);
4 -    Xc = x1 .* x2;
5 -    subplot(3,1,1)
6 -    plot(t, Xc, 'r')
7 -    xlabel('Time')
8 -    ylabel('Xc(t)')
```



Problem (3):

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mariammm.m

```
T0 = input(' pleas Enter the value of T0: ');
t = linspace(-4*T0, 4*T0, 1000);
M = zeros(size(t));
for n = 0:1
        pulse1 = rectangularPulse((t - (3*T0/4) - n*T0) / (T0/4));
    pulse2 = rectangularPulse((t + (3*T0/4) + n*T0) / (T0/4));
    M = M + pulse1 + pulse2;
end
w0 = 2*pi / T0;
M = M .* (10 * sin(w0 * t));
figure;
plot(t, M, 'r');
xlabel('Time');
ylabel('X(t)');
title('X(t)');
grid on;
ylim([-15 15]);
grid on;
```

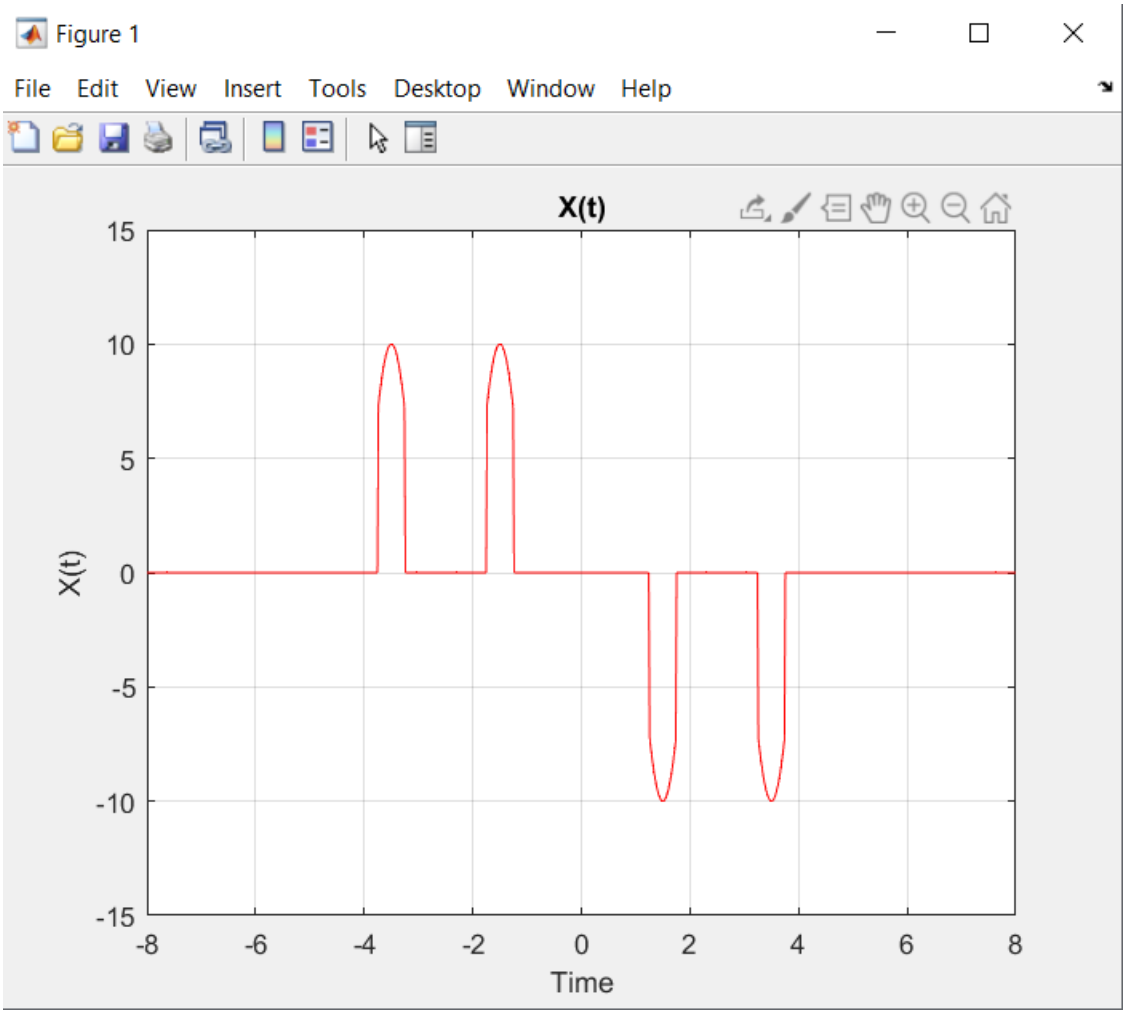
Figure 1
File Edit View Insert Tools Desktop Window Help
X(t)
15
10
5
0
-5
-10
-15
X(t)
-8
-6
-4
-2
0
2
4
6
8
Time

T0 = 2