```
>> %% ********** Q3 x(t) & p(t) *********
syms t s;
p_t = 20*(heaviside(t) - heaviside(t-40)) - 10*(heaviside(t-40)-heaviside(t-60));
P = 1.1*abs(min(p_t))
x_t = (p_t + P)*cos(2*pi*t)
subplot(2,1,1)
fplot(p_t,[0,100],'r',"LineWidth",2); % Plot x(t) as a function plot
xlabel('Time (sec)');
ylabel("p(t)");
title("p(t) for 0<=t<=100");

subplot(2,1,2)
fplot(x_t,[0,100],'r',"LineWidth",2); % Plot x(t) as a function plot
xlabel('Time (sec)');
ylabel("x(t)");
title("x(t) for 0<=t<=100");
```

```
P =

(11*abs(10*heaviside(t - 60) - 30*heaviside(t - 40) + 20*heaviside(t)))/10


x_t =

cos(2*pi*t)*((11*abs(10*heaviside(t - 60) - 30*heaviside(t - 40) + 20*heaviside(t))) ↙
/10 - 30*heaviside(t - 40) + 10*heaviside(t - 60) + 20*heaviside(t))

>>
```