```
>> %% ********** Q3 z(t) *********
clear;
clc;
t = 0:0.01:100;
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);
y = abs(x_t);
T_s = 0.01;
h = exp(-0.8.*t).*heaviside(t)
% i wil be using the Transfer function with Laplace for Low Pass (z(t)

z_t = conv(y,h,'same')*T_s;
disp(z_t)
plot(t,z_t,'r',"LineWidth",2); % Plot x(t) as a function plot
xlabel('Time (sec)');
ylabel("z(t)");
title("z(t) for 0<=t<=100");
```