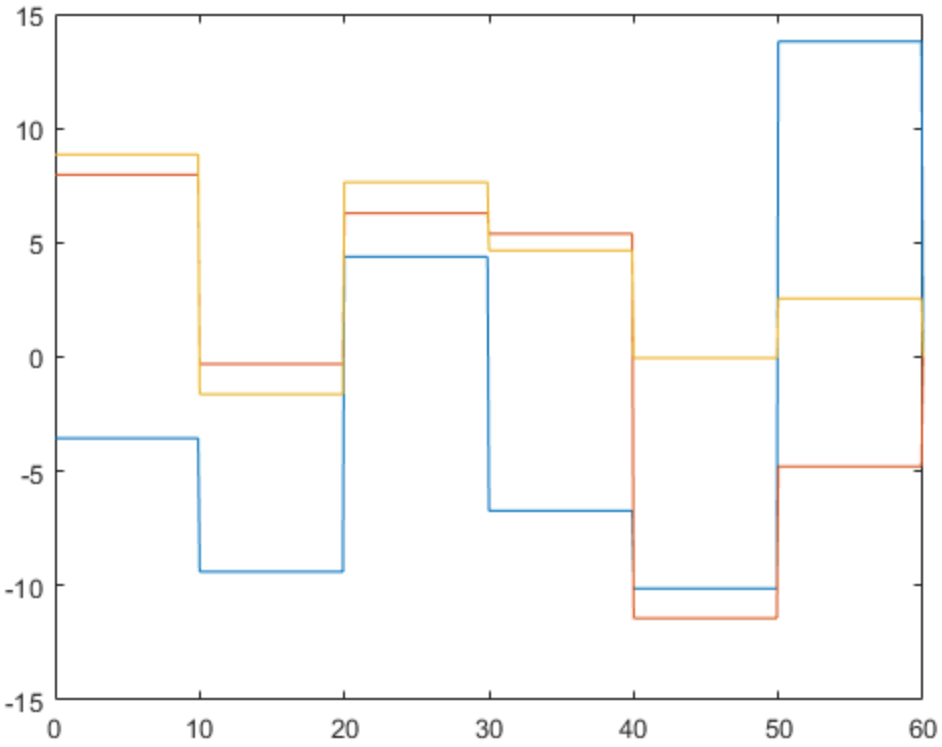
PROBLEM 4

```
clear variables; close all; clc

data_table_mag = readtable('Magnetometer_Att_est.csv');

time_stamps_mag = data_table_mag{1:20, 1};
mag_x = data_table_mag{1:20, 2};
mag_y = data_table_mag{1:20, 3};
mag_z = data_table_mag{1:20, 4};

time_stamps = 0:0.1:60;
n_t  = numel(time_stamps);
omega_b = zeros(3, n_t);

n_pieces = 6;
for m1 = 0:(n_pieces-1)
 omega_b(:, (m1*100 + 1):((m1+1)*100)) = kron( ...
  ((-15 + 30*rand(3,1))*pi/180), ones(1, 100));
end

plot(time_stamps, omega_b*180/pi)

data_table_sheet1 = table( ...
 time_stamps', omega_b(1,: )', omega_b(2,: )',
 omega_b(3,: )', 'VariableNames', ...
 {'Time (s)'; 'Gyroscope x (rad/s)'; 'Gyroscope y (rad/s)'; 'Gyroscope
 z (rad/s)'});

data_table_sheet2 = table( ...
 time_stamps_mag, mag_x, mag_y, mag_z, 'VariableNames', ...
 {'Time (s)'; 'Magnetic field x (mu T)'; 'Magnetic field y (mu
 T)'; 'Magnetic field z (mu T)'});

writetable(data_table_sheet1, 'data_exp4.xls', 'Sheet', 1)
writetable(data_table_sheet2, 'data_exp4.xls', 'Sheet', 2)

Warning: Column headers from the file were
modified to make them valid MATLAB
identifiers before creating variable names
for the table. The original column headers
are saved in the VariableDescriptions
property.
Set 'PreserveVariableNames' to true to use
the original column headers as table
variable names.
```



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