Tasks: Representation of signal using ramp, impulse functions, and verification of system time-invariancy

1. Write a MATLAB script to generate the following signal

$$x(t) = 3\,r(t+2) - 6\,r(t+1) + 3\,r(t) - 4\,u(t-4)$$

Then plot the signal and demonstrate analytically that the obtained figure is correct.

2. Write a MATLAB script to represent the following signal using impulse-function

$$x(n) = \begin{cases} -n + 10, 0 \le n \le 5 \\ n, 6 \le n \le 8 \\ 0, else \end{cases}$$

Then plot the signal and demonstrate analytically that the obtained figure is correct.

3. Write a MATLAB script to graphically demonstrate whether the following system is Time-invariance or not.

$$y(n) = \tau\{x(n)\} = x(-n)$$

Then verify with the analytical result.

Structure of lab report

a) Title of the experiment → "Creation a document using MS office"

b) Your name → XYZ, Roll-no: 1234

c) About the experiments →

d) Content of the experiment (diagram/programme source code/flowchart) →

e) Your observation/what you learned →

After complementation of the LAB, document has to be uploaded in Google classroom
filename: StudentName_rollNo

Thank you!