Experiment-3
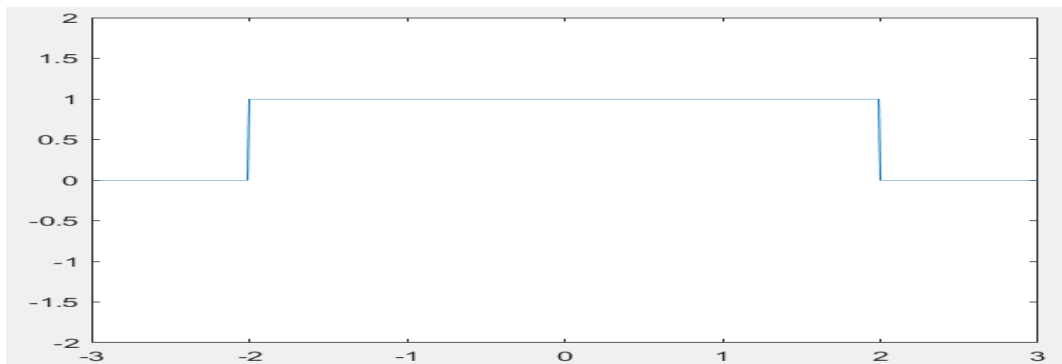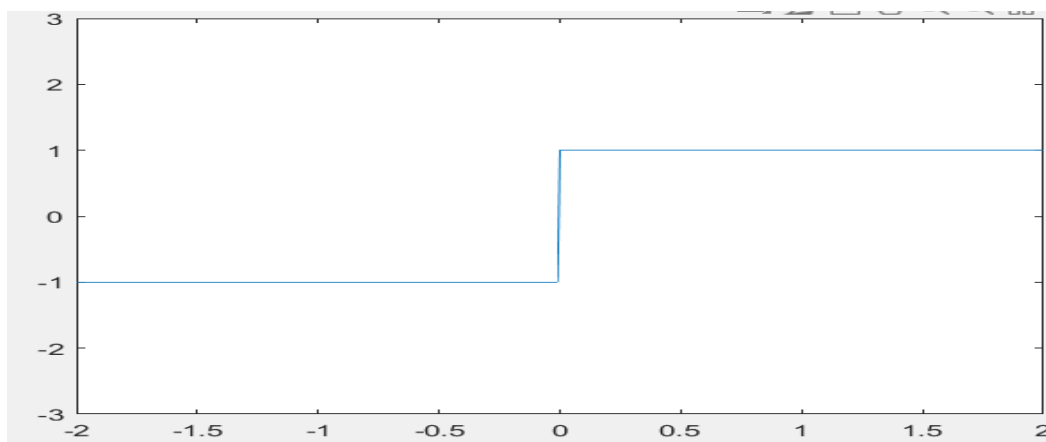
Objective: To learn how to generate and plot different continuous signals in MATLAB and to perform different operations on signals.

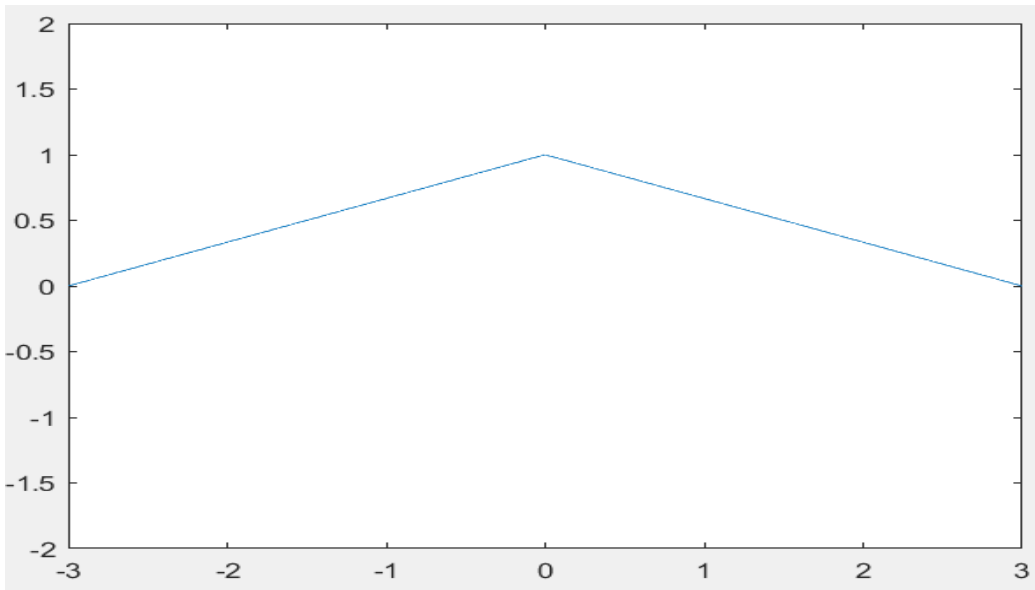**Q1: Generate and plot different continuous signals in MATLAB**

(a) **Unit Impulse signal**
(b) **Unit Step Signal**
(c) **Unit Ramp Signal**
(d) **Unit Parabolic Signal**
(e) **Sine wave with frequency 10Hz and amplitude 2**
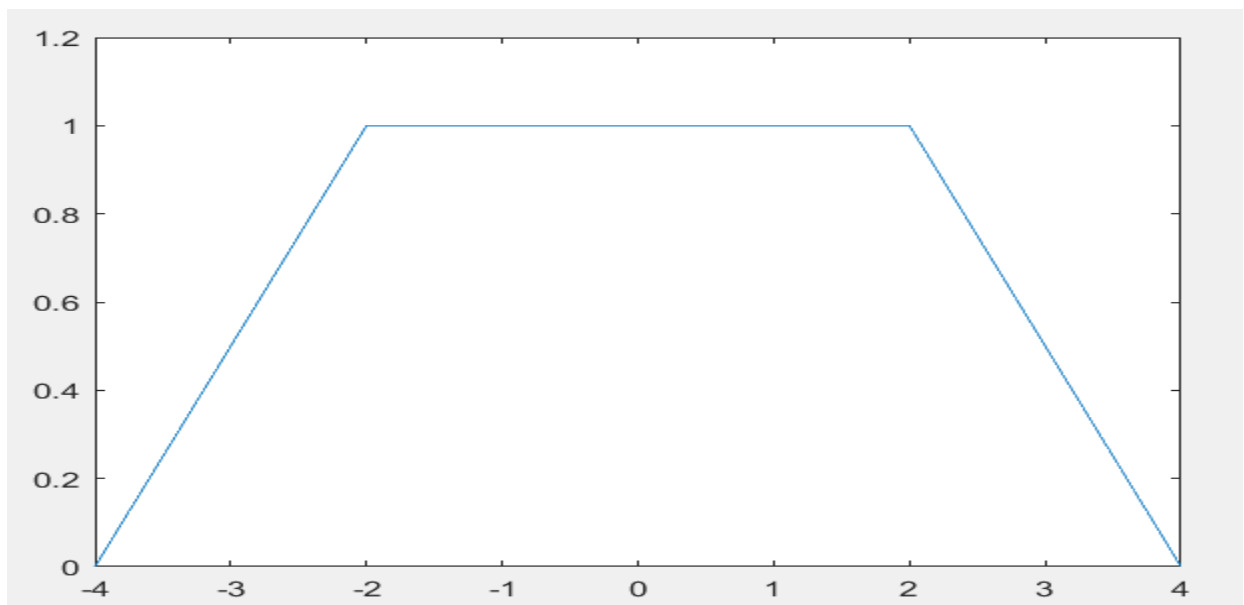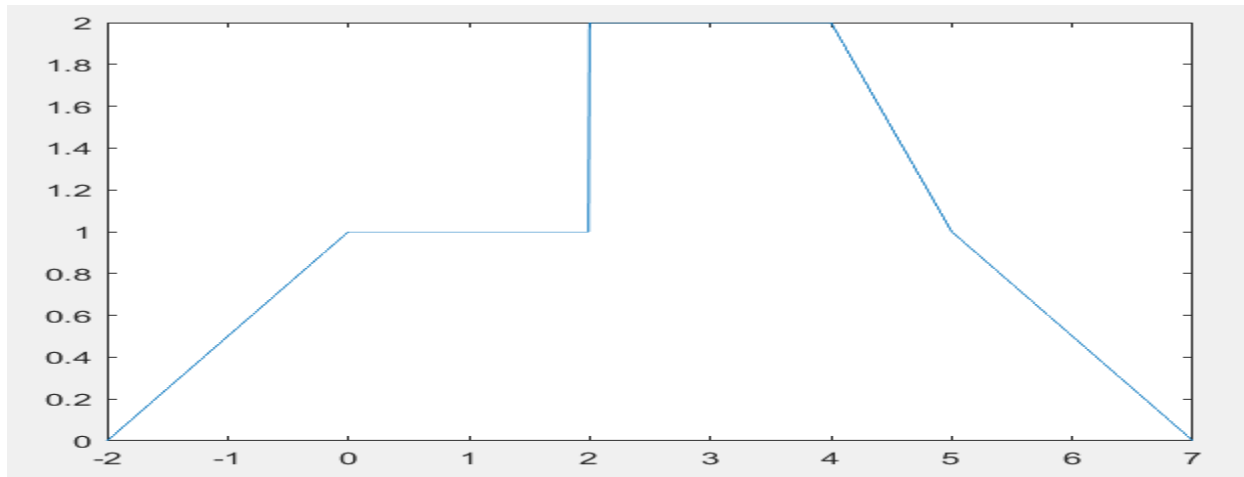(f) **Gate/ Window signal**

(g) **Signum Signal**
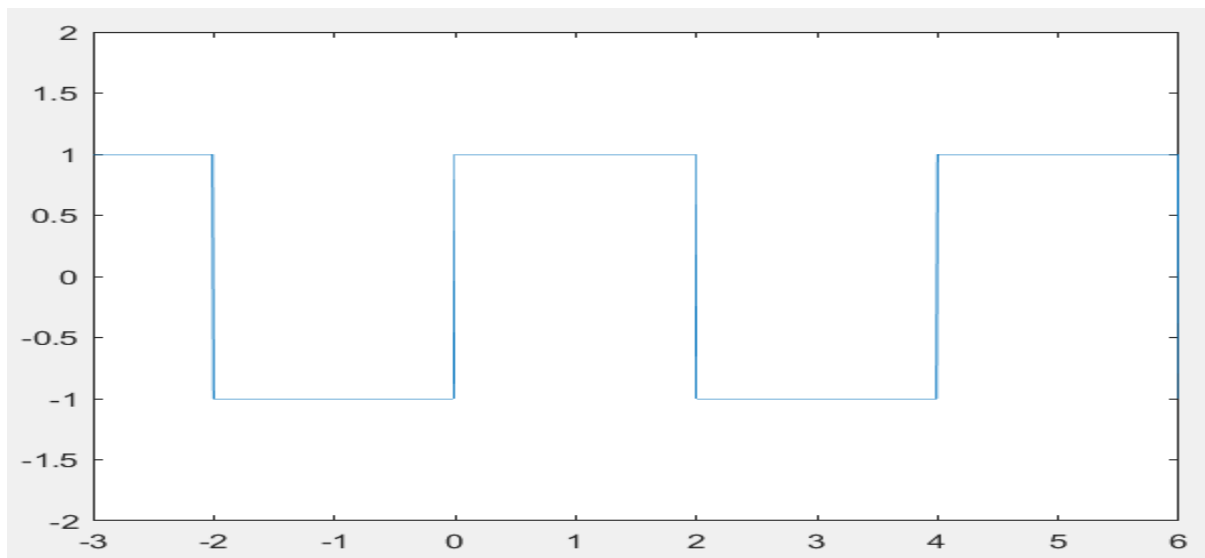
(h) Triangular signal
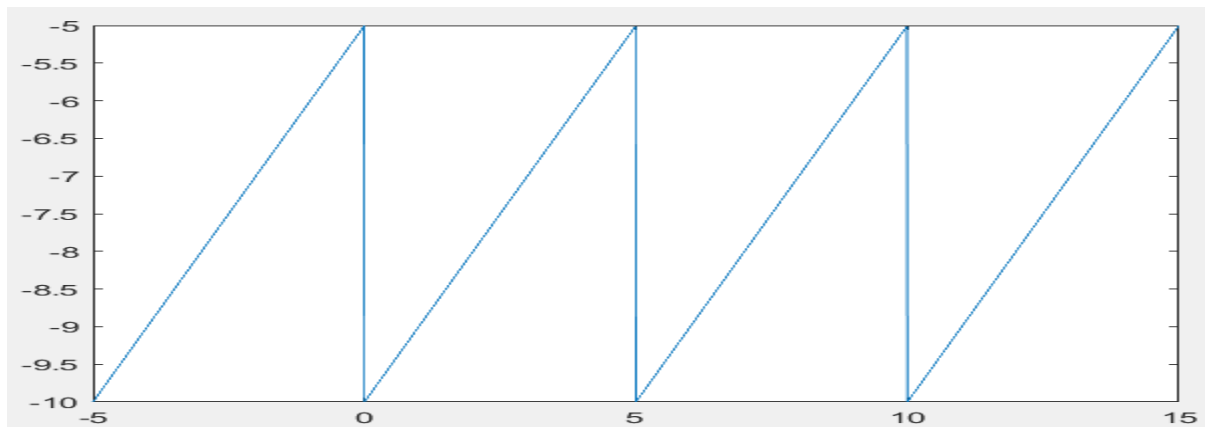

(i) Trapezoidal signal

(j) Signal x(t)

(k) Square wave

(l) Sawtooth wave

Q2: Perform following operations on signals and plot the resulting signals in MATLAB. Consider suitable time range for each signal

a) x(t)=0.1Sin(20*pi*t)+Sin(10*pi*t)+5Cos(2*pi*t)

b) x(t)= 5sin(40*pi*t)+ sin(2*pi*t)

c) x(t)= (3+cos(2*pi*t))sin(20*pi*t) (also show the envelopes in dotted line)

d) x(t)= Sin(10*pi*t)*[u(t)-u(t-1)]

e) x(t)=e^(-2|t|) Cos(10*pi*t)

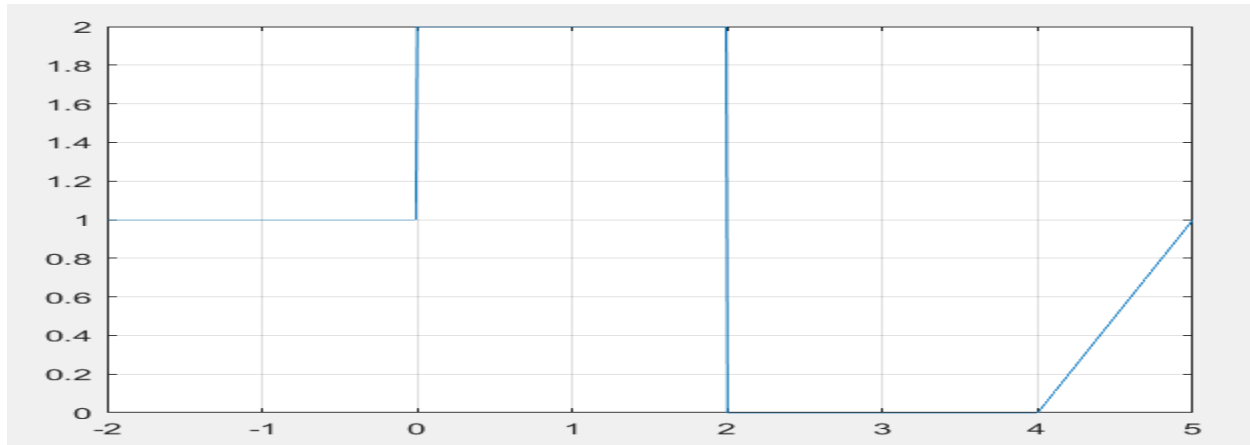f) x(t)=Sin(pi*t)/(pi*t)   (Sinc Function)

g) x(t)=t*Sin(20*pi*t)*u(t)

h) x(t)=t*e^(-3t) Cos(10*pi*t) u(t)

Q3:

a) Generate the signal x(t) as shown below:

b) Plot the following signals:

i) x(-t)   ii) -x(t)   iii) x(2t)   iv) x(t/4)   v) x(t+2)   vi) x(2t+3)