Unit-2_Assignment-1(Signals and Systems)

1.Find the Fourier Transform of

2.Find the Fourier Transform of

3.Find the Fourier transform of using convolution theorem

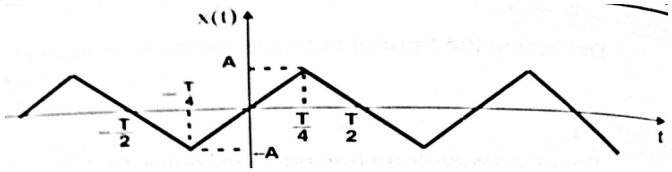
4.Consider an LTI system with the differential equation +4+3y(t)=+2x(t).Find the frequency response and impulse response.

5.Find the Fourier transform of

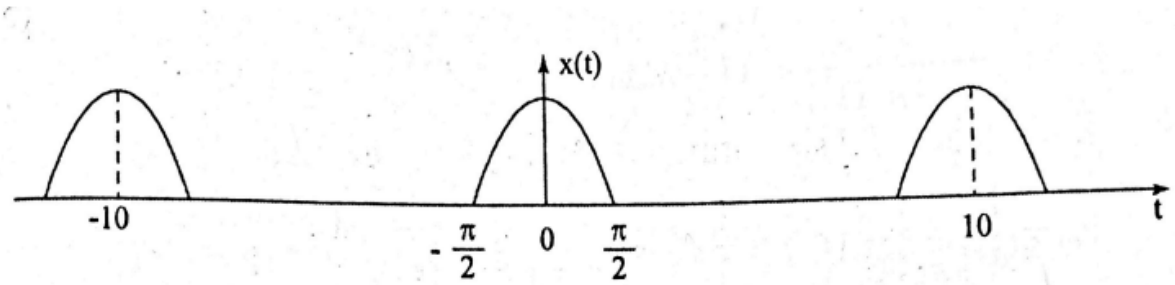
6.Find the Fourier Series Coefficients of the CT signal = 1.5 , 0≤t<1

-1.5 ,1≤t<2

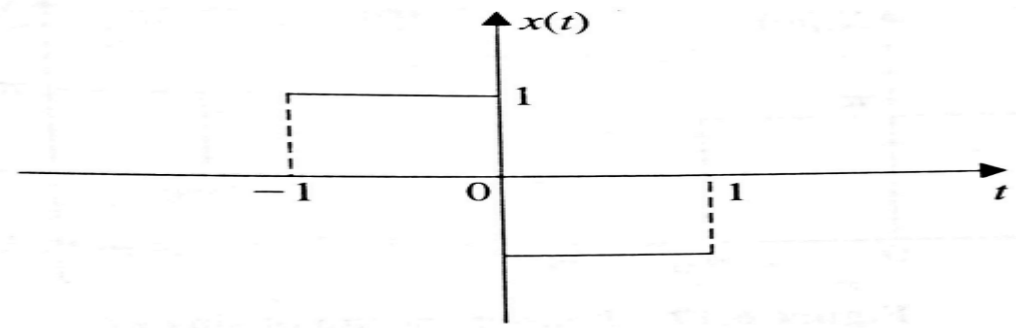
7.Find the Trigonometric Fourier Series of the waveform shown



8. Find the exponential Fourier series for the signal shown in figure

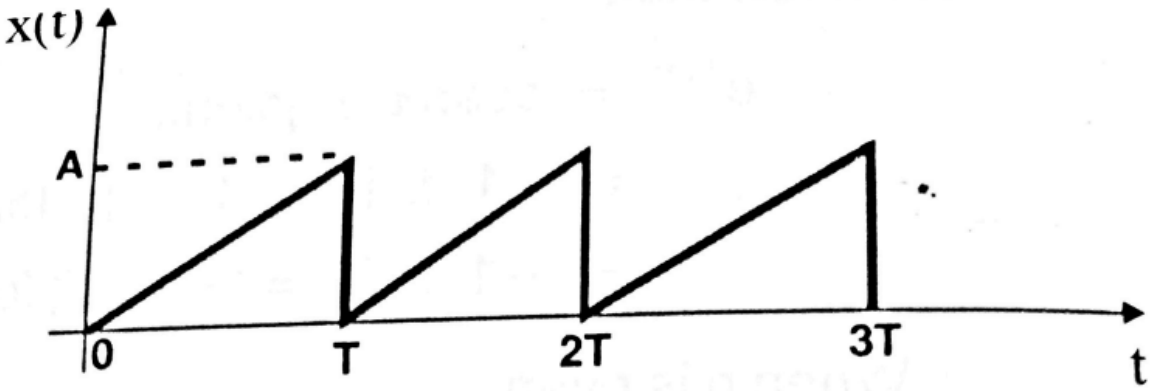


9.Find the Fourier Transform of the signal shown in figure .



10. Determine the exponential form of the Fourier series representation of the signal shown

in figure.Hence determine thre trignometric form of Fourier series.



11. Find the laplace transform, draw ROC and pole zero plot of the given function
    $x(t) = e^{-4t}u(t)+e^{3t}u(-t)$

12. Find the unilateral laplace transform of $x(t)= t\, e^{-at} \cos 2t$

13. Find the initial and final values
    $X(s) = (s+3)/(s^2 + 3s)$

14. Using the convolution theorem solve the given function
    $x_1(t) = e^{-3t}u(t)$ and $x_2(t) = e^{-2t}u(-t)$
15. Find the inverse laplace transform of the function
16. Find the signal x(t) for $X(s)= 2s/(s^2+4s+3)$
    (a) Re(s) >-1
    (b) Re(s) <-3
    (c) -1< Re(s) <-3

17. Determine the output-y(t) of the given system

$$\frac{d^2y(t)}{dt^2} + 3\frac{dy(t)}{dt} + y(t) = e^{-t} \qquad \frac{dy(0)}{dt} = y(0) = 0$$