



VIT

Vellore Institute of Technology
(Approved to be University under section 3 of U.A. Act, 1956)

SCHOOL OF ELECTRICAL ENGINEERING FALL SEMESTER 2023-2024

CAT-I

SLOT: B1 + TB1

Programme Name & Branch : B. Tech (EIE & EEE)

Course Code: BEEE204L

Course Name : SIGNALS AND SYSTEMS

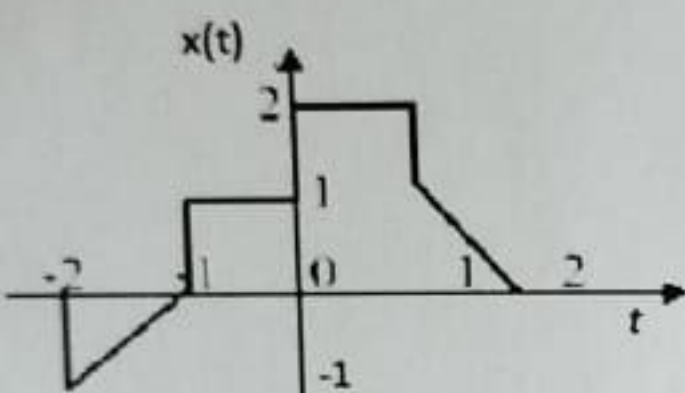
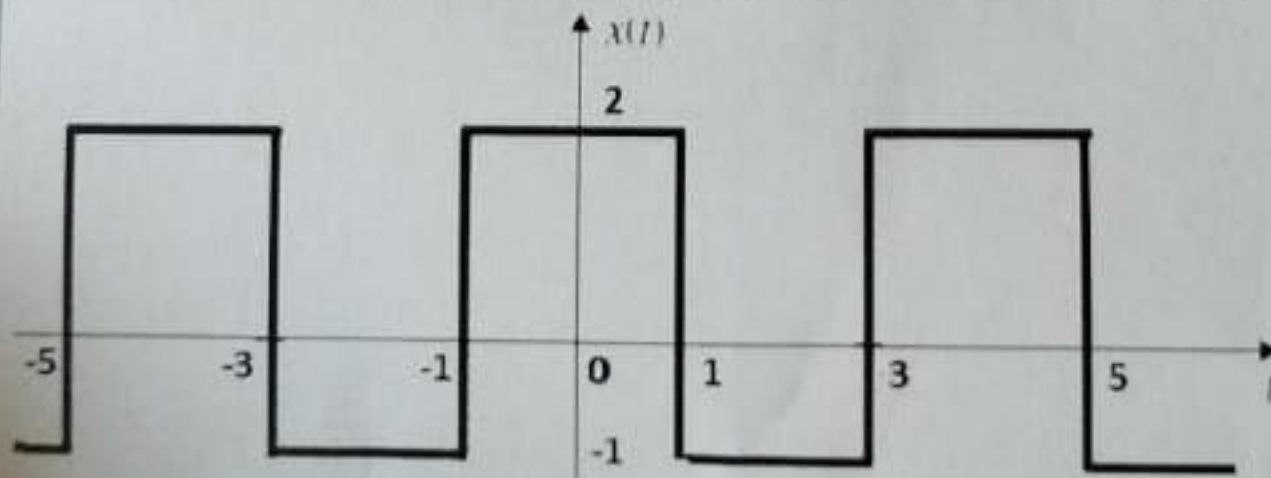
Faculty Members: Dr. N. Amutha Prabha, Dr. B. Jaganatha Pandian & Dr. Maddela Chinna Obaiah

Class Number(s): 2902, 2903 & 2904

Date of the Examination: 11/09/2023

Duration : 90 minutes

Max. Marks : 50

Q. No	Question	Marks
1.	For the signal $x(t)$ shown, sketch i. $x(t-3)$, ii. $x(2t+1)$, iii. $x(-t-2)$, iv. $x(0.4t)$ v. $0.4x(t)$ 	10
2.	a. Present the relationship between each of the signals given below: Unit step, unit ramp & unit parabola b. Prove that the convolution of 2 signals in time domain is multiplication in frequency domain	5 + 5
3.	Determine whether the given system $y[n] = n \sin[x(n)]$ is (a) static or dynamic (b) linear or non-linear (c) time invariant or time variant (d) causal or non-causal (e) stable or unstable.	10
4.	Two sequences are given by $x[n] = \{2, \frac{1}{2}, -1, 2\}$ and $h[n] = \{\frac{1}{2}, 2, 3\}$ a. Find the linear convolution between $x[n]$ and $h[n]$ using Tabular method. b. Find the circular convolution between $x[n]$ and $h[n]$ using Zero padding method.	5 + 5
5.	Determine the trigonometric Fourier series representation for the given signal 	10