



VIT

Vellore Institute of Technology

SCHOOL OF ELECTRICAL ENGINEERING
CONTINUOUS ASSESSMENT TEST - I
FALL SEMESTER 2025-2026

SLOT: B1+TB1

Programme Name & Branch
Course Code and Course Name
Faculty Name(s)

: B. Tech EEE/EIE
: BEEE204L, Signals and Systems
: Amutha Prabha N,
Mathew Mithra Noel & Yuvapriya T
: VL2025260101027
VL2025260101028
VL2025260101030

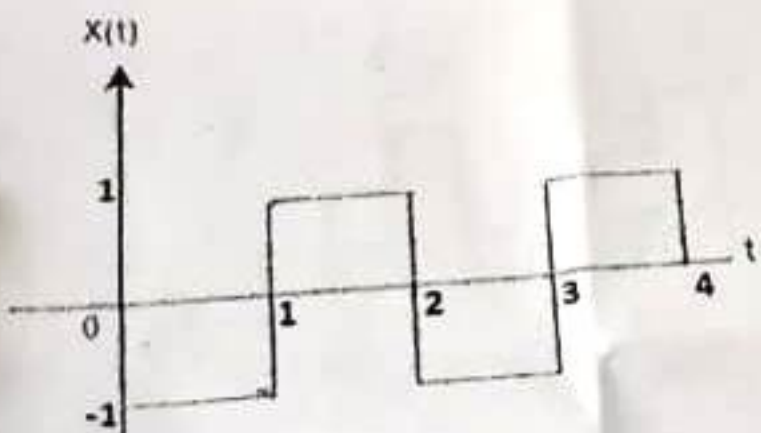
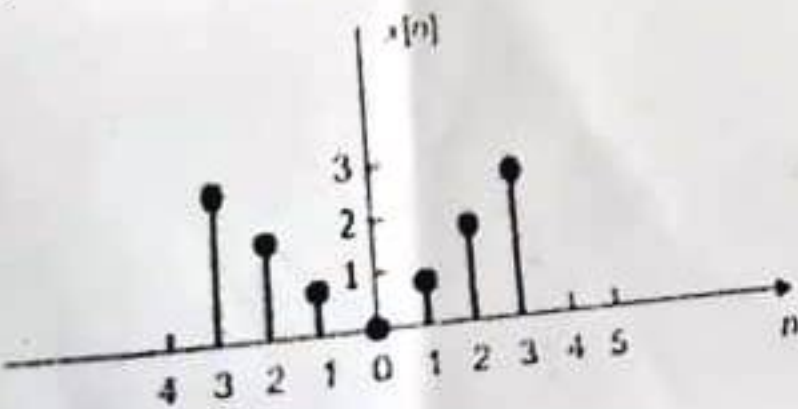
Date of Examination
Exam Duration

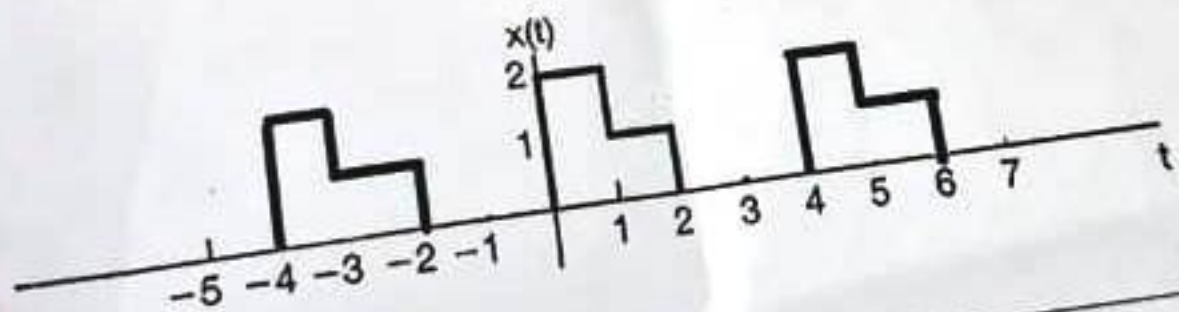
: 18 August 2025
: 90 minutes

Maximum Marks: 50

General instruction(s):

- Answer All Questions.
 - M - Max mark; CO - Course Outcome; BL - Blooms Taxonomy Level (1 - Remember, 2 - Understand, 3 - Apply, 4 - Analyze, 5 - Evaluate, 6 - Create)
- Course Outcomes:
CO1: Perform signal transformations on continuous and discrete - time signals and systems.
CO2: Apply convolution integrals and convolution sums to obtain response of LTI systems.
CO3: Apply frequency domain techniques to obtain steady state response of the continuous and discrete time LTI system.

Q. No	Question	M	CO	BL
1	Consider the signals $x(t)$ and $x[n]$ shown below: i) Neatly sketch $x(2t - 1)$  ii) Neatly sketch $x[5n + 1]$ 	5	CO1	3

2a	Determine if the following signals are periodic and if periodic determine the fundamental period: i) $x[n] = 10\cos\left(\frac{23\pi n}{5}\right)$ ii) $x(t) = \sin t + \sin 3t + \sin 7t$	3			
2b	Plot odd and even parts of the signal $x(t) = u(t)$. Where $u(t)$ is the unit step signal.	3	CO1	3	
3	Determine whether the given system $y(t) = x(3-2t)$ is (i) Memoryless (static) or dynamic (ii) linear or non-linear (iii) time invariant or time variant (iv) causal or non-causal (v) BIBO stable or unstable. Provide justification for your answers.	4			
4	Convolve the signals $x_1[n]$ and $x_2[n]$ using the graphical convolution method: $x_1[n] = \{4 \ 3 \ 2 \ 1\}$ $x_2[n] = \{2 \ 3 \ 2 \ 1\}$ The signals start at $n = 0$.	10	CO1	2	
5	Determine the Complex Exponential Fourier series representation of the signal shown below:	10	CO2	3	
		10	CO3	4	