



VIT

Vellore Institute of Technology
(Deemed to be University under section 3 of UGC Act, 1956)

REG.NO.:

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

SLOT: B2+TB2

Programme Name & Branch : B. Tech EEE/EIE
Course Code and Course Name : BEEE204L, Signals and Systems
Faculty Name(s) : Mathew M. Noel, Maddela Chinna Obaiah
Class Number(s) : VL2025260101031, VL2025260101032
Date of Examination : 6 October 2025, 9:30 AM – 11:00 AM
Exam Duration : 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:
CO3: Apply frequency domain techniques to obtain steady state response of the continuous and discrete time LTI system.
CO5: Apply Laplace and Z-Transform techniques to analyze LTI systems.

Q. No	Question	Marks	CO	BL
1	i) Determine the Fourier transform of the given function $x(t) = e^{-2(t-1)}u(t-1)$ ii) Compute the convolution of the following pair of signals $x(t)$ and $h(t)$ using Fourier transform. $x(t) = e^{-t}u(t), \quad h(t) = 2e^{-4t}u(t).$	5 5	3	3
2	Find the Discrete-time Fourier Series representation of the 8-periodic sequence $x[n]$ $x[n] = \{0, -2, -1, 0, 1, 2, 0, 0\}$ for $0 \leq n \leq 7$.	10	3	3
3	a) Find the Fourier transform X of the sequence $x[n] = a^n u[n-3]$ where a is a complex constant satisfying $ a < 1$. b) Find the impulse response $h[n]$ of the system with frequency response $H(e^{j\omega}) = \frac{9 + 2e^{-j\omega}}{1 + \frac{1}{6}e^{-j\omega} - \frac{1}{6}e^{-j2\omega}}$	5 5	3	3

P.T.O



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4	Find the Laplace transform and ROC of the signals i) $x(t) = e^{-2t}u(t) + e^{-3t}u(t)$. ii) $x(t) = tu(-t)$.	6 4	5	3
5	Determine the inverse Laplace transform of $X(s) = \frac{2s + 1}{(s + 1)^2(s + 2)}$ for $\text{Re}\{s\} > -1$.	10	5	3