

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

Programme Name & Branch	: B. Tech EEE/EIE		
Course Code and Course Name	: BEEE204L, Signals and systems		
Faculty Name(s)	: Dr. Amutha Prabha N, Dr. Mathew Mithra Noel, Dr. Yuvapriya T		
Class Number(s)	: VL2025260101027 VL2025260101028 VL2025260101030		
Date of Examination	: 06/10/2025		
Exam Duration	: 90 minutes	Maximum Marks: 50	

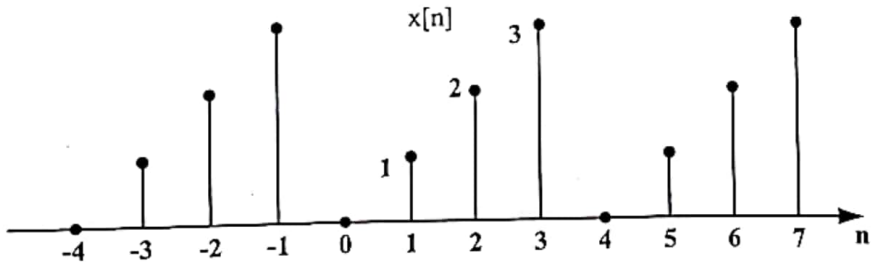
General instruction(s):

- Answer All Questions
- Rough work should not be done on question paper. It will be treated as malpractice.
- M - Max mark; CO – Course Outcome; BL – Blooms Taxonomy Level (1 – Remember, 2 – Understand, 3 – Apply, 4 – Analyse, 5 – Evaluate, 6 – Create)

Course Outcomes Statements:

CO3: Apply frequency domain techniques to obtain steady state response of the continuous and discrete time LTI system.

C05: Apply Laplace and Z-Transform techniques to analyze LTI systems.

Q. No	Question	M	CO	BL
1.	i) Consider the given discrete time sequence $x[n]$. Determine the exponential Fourier series coefficients.  ii). Determine the DTFT of the following signal. $x[n] = \left(\frac{1}{4}\right)^{n-2} u(n-2)$	10	3	4
2	i) Determine the Fourier transform of the following signal. $x(t) = \sin\left(2\pi t + \frac{\pi}{4}\right)$ ii) Determine the inverse Fourier transform of the following signal. $X(\omega) = 3\delta(\omega) + 6\delta(\omega + 2) + 2\delta(\omega + 4) + 6\delta(\omega - 2) + 2\delta(\omega - 4)$	10	3	3



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3.	Find the Inverse discrete Fourier transform of the signal $X(e^{j\omega}) = \frac{3 - \frac{5}{4}e^{-j\omega}}{\frac{1}{8}e^{-j2\omega} - \frac{3}{4}e^{-j\omega} + 1}$	10	3	4
4.	Determine the inverse Laplace transform of $X(s) = \frac{s}{(s-1)(s-2)^2}$	10	5	3
5.	Determine the Laplace transform and associated region of convergence for the following functions of time i) $x(t) = e^{-2t}u(t) + e^{-3t}u(t)$ ii) $x(t) = te^{-2 t }$	10	5	3