



Daffodil International University
Department of Electrical and Electronic Engineering
Faculty of Engineering
Midterm Examination, Fall – 2025

Course Code: EEE-0714-217
Section: A, B, C, D, E
Full Marks: 25

Course Title: Continuous Signals & Linear Systems
Level-Term: L2-T1
Exam Date: October 09, 2025
Teacher's Initial: MFI
Time: 1.5 Hours

Answer all the following Questions

- Q1. A continuous-time signal $x(t)$ is shown in Fig. 1. Sketch and label each of the following signals. (a) $0.5x(t)$; (b) $x(2t)$; (c) $x(t+2)$; (d) $x(t) - 2$.

CO-1 5
C(3)

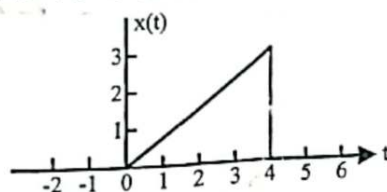


Fig. 1

- Q2. Identify whether or not each of the following signals is periodic. If a signal is periodic, find its fundamental period. (a) $x(t) = \cos \frac{\pi}{2}t + \sin \frac{\pi}{2}t$ (b) $x(t) = \cos t + \sin \sqrt{2}t$.

CO-1 5
C(2)

- Q3. Identify whether the following signals are energy signals, power signals, or neither. (a) $x(t) = e^{-\alpha t}u(t)$, $\alpha > 0$; (b) $x(t) = tu(t)$.

CO-1 5
C(2)

- Q4. The input $x(t)$ and the impulse response $h(t)$ of a continuous time LTI system are given by $x(t) = u(t)$, $h(t) = e^{-\alpha t}u(t)$, $\alpha > 0$. Compute the output $y(t) = h(t) * x(t)$.

CO-1 5
C(3)

- Q5. The continuous-time system shown in Fig. 2 consists of two integrators and two scalar multipliers. Write a differential equation that relates the output $y(t)$ and the input $x(t)$.

CO-1 5
C(2)

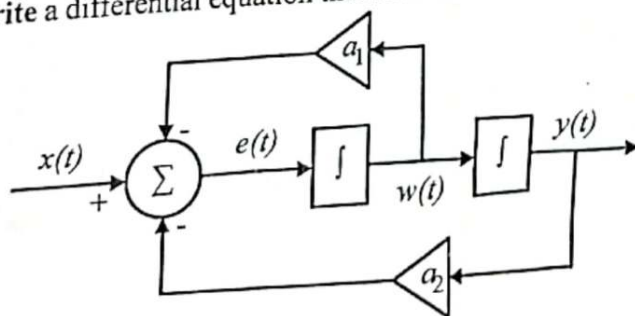


Fig. 2