



Daffodil International University
 Department of Electrical and Electronic Engineering
 Faculty of Engineering
Mid-Term Examination, Spring – 2025

Course Code: 0714 – 217
 Section: A, B, C
 Full Marks: 25

Course Title: Continuous Signal and Linear Systems
 Level-Term: L2-T1
 Exam Date: March 19, 2025

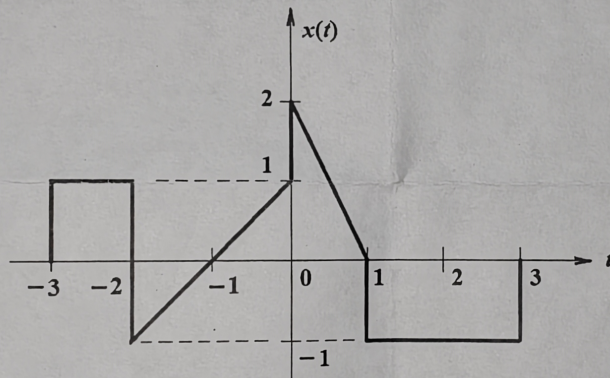
Teacher's Initial: SRC, SRH, BS
 Time: 1.5 Hours

Answer any 2 (Two) questions from Questions Q1 to Q3

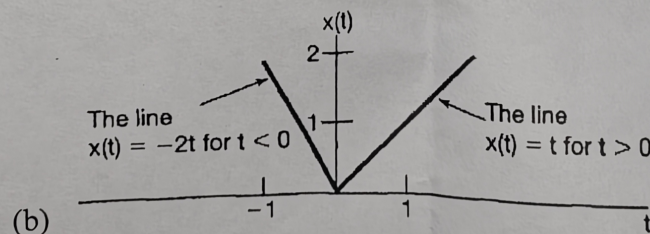
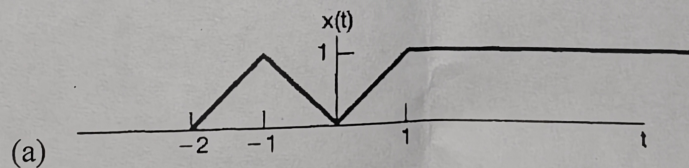
Q1. Consider a continuous-time signal shown in the following Figure. **Illustrate and label** each of the following signals. CO-1 10
C(2)

(a) $x(t-1)$ (b) $x(1-t)$ (c) $x(2t+1)$

(d) $x\left(1-\frac{t}{2}\right)$ (e) $x(t)[u(t+1)-u(t-1)]$ (1 + 1 + 2 + 3 + 3 = 10)



Q2. Graphically **determine** and sketch the even and odd parts of the following signals. CO-1 10
C(2)



Q3. The trapezoidal pulse $x(t)$ is defined as

CO-1
C(2)

$$x(t) = \begin{cases} t-5, & -5 \leq t \leq -4 \\ 1, & -4 \leq t \leq 4 \\ 5-t, & 4 \leq t \leq 5 \\ 0, & \text{otherwise} \end{cases}$$

Determine the values of P_{av} and E_{∞} of the signal $x(t)$.

Answer any 1 (One) question from Questions Q4 and Q5

Q4. Determine the even and odd components of the following signal:

CO-1
C(2)

$$x(t) = 1 + t \cos(t) + t^3 \sin(t) \cos(t)$$

Q5. Determine whether the following signal is periodic. If the signal is periodic, find its fundamental period.

CO-1
C(2)

$$x(t) = e^{j\left(\frac{\pi}{4}t+3\right)}$$