



Daffodil International University
Department of Electrical and Electronic Engineering
Faculty of Engineering
Midterm Examination, Fall – 2026

Course Code: 0714-133

Section: A, B

Full Marks: 25

Course Title: Continuous Signals & Linear Systems

Level-Term: L1-T3

Exam Date: 31 October, 2026

Teacher's Initial: SKS

Time: 1.5 Hours

All questions are compulsory.

The second rightmost column indicates the corresponding Course Outcomes (COs) along with their respective Bloom's Taxonomy levels, and the rightmost column indicates the allocated marks for each question.

- Q1. a) **Identify** whether or not the following signal is periodic. If a signal is periodic, find its fundamental period: CO-1 5
C (2)

$$x(t) = \sin(3\pi t/4) + \cos(\pi t/2)$$

- b) **Identify** the even and odd components of the following signal:

$$x(t) = 10\sin t + 5\cos t - 4\cos t.\sin t$$

- Q2. **Express** the pulse (or rectangular) given in the following Fig.1 in terms of the unit step. CO-1 5
C (2)
Calculate its derivative and sketch it.

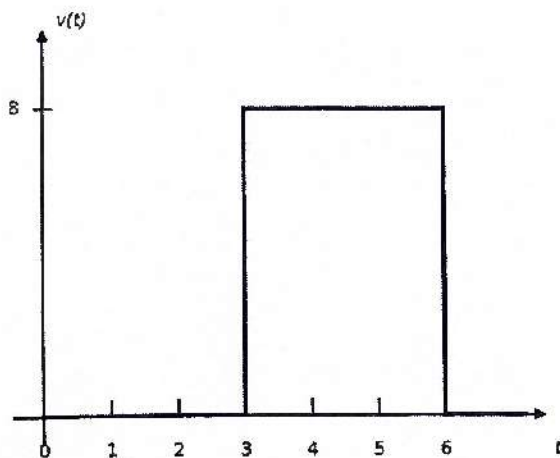


Fig. 1.

- Q3. A continuous-time signal $x(t)$ is shown in the following Fig. 2. Sketch and label each of the following signals: (a) $-x(t)$; (b) $2x(-t)$; (c) $2x(t+3)$; (d) $4x(t-2)$; (e) $x(t) + 3$

CO-1 5
C (2)

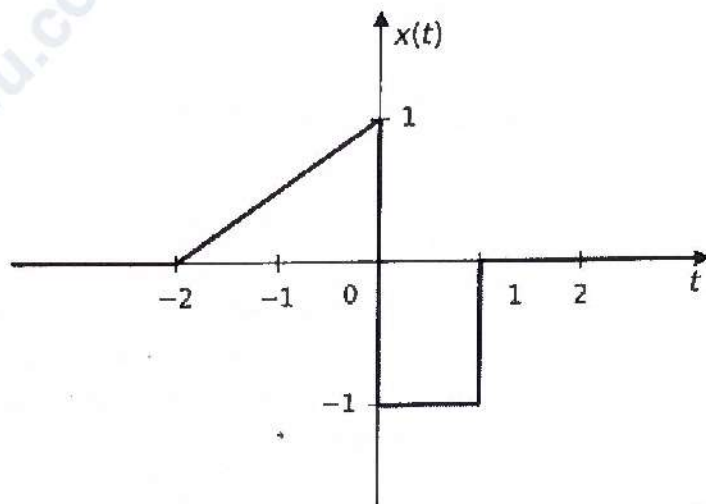


Fig. 2.

- Q4. Determine whether the following signals are time variant or time invariant signals.

CO-1 5
C (3)

- (a) $y(t) = x^2(t)$
- (b) $y(t) = \cos(t) x(t)$
- (c) $y(t) = x(t-2) 3x(t)$

- Q5. The input $x(t)$ and the impulse response $h(t)$ of a continuous time LTI system are given by $x(t) = u(t)$, $h(t) = e^{-3t}u(t)$. Compute the output response $y(t) = h(t) * x(t)$.

CO-1 5
C (3)