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

Course Code: 0714-217 | Course Title: Continuous Signals & Linear Systems | Teacher's Initial: MFI, SRH
Section: A, B, C, D, E, F, G | Level-Term: L2-T1 | Time: 1.5 Hours
Full Marks: 25 | Exam Date: June 27, 2026

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) 2x(t+3); (d) x(t) – 3; (e) 2x(-t) — CO-1 C(3) — 5

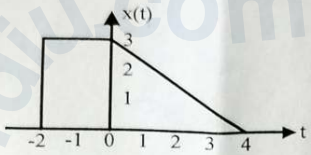


Fig. 1

Q2. **Identify** whether or not each of the following signals is periodic. If a signal is periodic, **find** its fundamental period: — CO-1 C(2) — 5

(a) $x(t) = sin\frac{2\pi}{3}t + cos\frac{4\pi}{5}t$; (b) $x(t) = 3\cos 5t + 2\sin\left(\frac{\pi t}{2}\right)$.

Q3. **Identify** whether the following signals are energy signals, power signals, or neither. — CO-1 C(2) — 5

(a) $x(t) = tu(t)$;

(b)

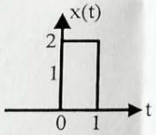


Fig. 2

Q4. The input $x(t)$ and the impulse response $h(t)$ of a continuous time LTI system are given by $x(t) = e^{at}u(-t)$, $h(t) = e^{-at}u(t)$, $a > 0$. **Compute** the output $y(t) = h(t) * x(t)$. — CO-1 C(3) — 5

Q5. **Determine** the even and odd components of the following signals: — CO-1 C(3) — 5

(a) $x(t) = e^{jt}$

(b)

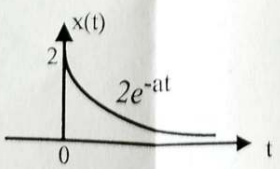


Fig. 3