

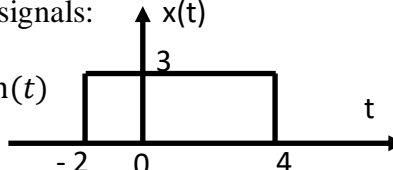
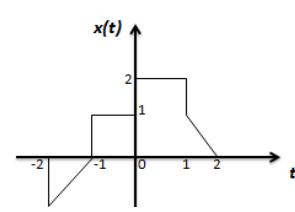
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INTERNAL ASSESSMENT TEST – I

Sub:	Signals and Systems	Code:	17EC42
Date:	05 / 03/ 2019	Duration:	90 mins
		Max Marks:	50
		Sem:	IV
		Branch:	ECE(A)

Answer for 50 marks

		Marks	CO	RBT
1	Find the even and odd parts of the following signals: a) $x(t) = 1 + t\cos(t) + t^2 \sin(t)$ b) $+t^3 \cos^2(t)\sin(t)$	[6]	CO1	L2
				
2	Determine if the following signals are periodic or not. If periodic, then find the period: a) $\cos\left(\frac{n\pi}{5}\right) \sin\left(\frac{n\pi}{5}\right)$ b) $\cos(3n)$ c) $\sin(2t) + \sin(3\pi t)$ d) $e^{(-1+j)t}$	[10]	CO1	L3
3	For the signal, $x(t)$, as shown in Fig. 3, plot the following: a) $x\left(4 - \frac{t}{2}\right)$ b) $[x(t) + x(-t)]u(t)$ c) $-2x(2t)$	[10]	CO1	L3
				

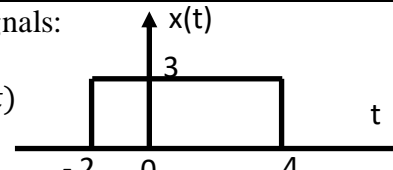
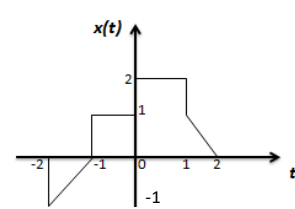
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4	Determine the average power and total energy of the following signals: a) $e^{at}u(-t)$, $a>0$ b) $u(n)$ c) $(j)^n + (-j)^n$	[10]	CO1	L3
5	Determine if the following systems are memoryless, causal, stable, time invariant and /or linear? a) $y(t) = \sin(x(t))$ b) $y[n] = x[3n]$ c) $y(-t) = 3x(t) + x(t - 1)$ d) $y[n + 1] - 2y[n] = x[n]$ e) $y(t) = r(t)x(t - 2)$	[10]	CO1	L3
6	Sketch the following: a) $y(t) = r(t + 2) - r(t) - r(t - 1)$ b) $x[n] = u[n + 1] - u[n - 8]$ c) Signum function	[10]	CO1	L2
7	What is a signal? Give a few examples.	[4]	CO1	L1

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