Total No. of Questions : 4]

SEAT No. :

PB-17

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S.E. (Eletronics/E&TC)/Electronics &Computer) (Insem)

SIGNALS & SYSTEMS

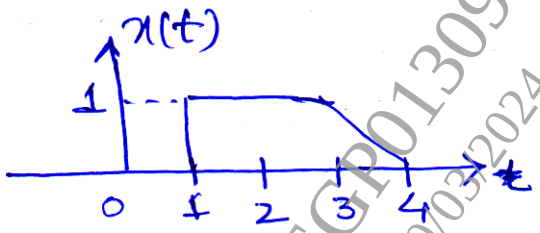
(2019 Pattern) (Semester - IV) (204191)

Time : 1 Hour] *[Max. Marks : 30*

Instructions to the candidates:

1) ***Solve Q1 or Q2, Q3 or Q4.***
2) ***Neat diagrams must be drawn wherever necessary.***
3) ***Figures to the right side indicate full marks.***
4) ***Use of logarithmic tables slide rule, Mollier charts, electronic pocket calculator and steam tables is allowed.***
5) ***Assume Suitable data if necessary.***

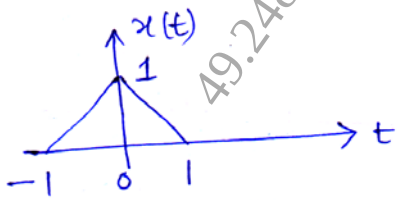
Q1) a) Find even and odd parts of given signal. **[5]**



b) Check whether the given signal is periodic or non-periodic. If periodic find the period. **[5]**

$x(t) = (5\sin t) + (4\cos 3t)$

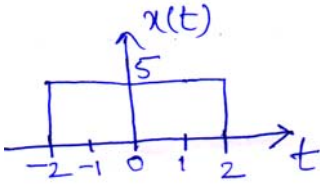
c) Sketch the following $y(t)$ if $x(t)$ is **[5]**



$y(t) = x(-2t + 1)$

OR

Q2) a) Check whether the given signal is energy or power. Find energy and power. **[5]**



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b) Check whether the given system is linear, Time-Invariant, Memory. **[5]**

$y[n] = x[n-1] + 20$

c) Sketch and write mathematical expression for CT & DT signals given. **[5]**

i) Unit step

ii) Unit Ramp

Q3) a) Find the convolution sum for the two signals given using graphical method. **[5]**

$h[n] = \{1, \underset{\uparrow}{3}, 2\}$

$x[n] = \{1, 2\}$

b) State and explain the properties of convolution. **[5]**

c) From the given impulse response check whether the given system is stable, static and causal. **[5]**

$h(t) = 5\delta(t-1)$

OR

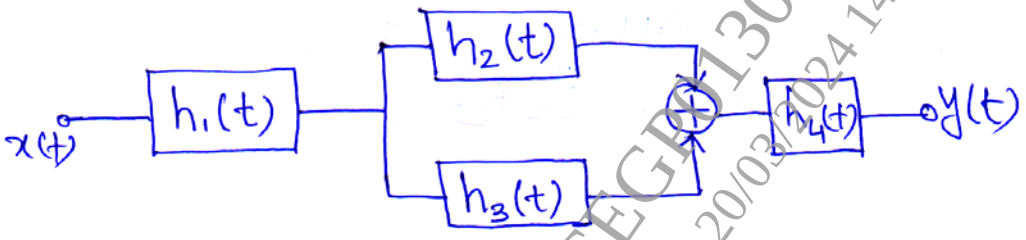
Q4) a) Find the convolution Integral of the following signals. **[5]**

$x(t) = u(t) \quad h(t) = u(t-2)$

b) Determine the step response of following system whose impulse response is **[5]**

$h(t) = e^{-3t}u(t)$

c) Find the overall impulse response for the given system. **[5]**



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