خالد ابو بكر

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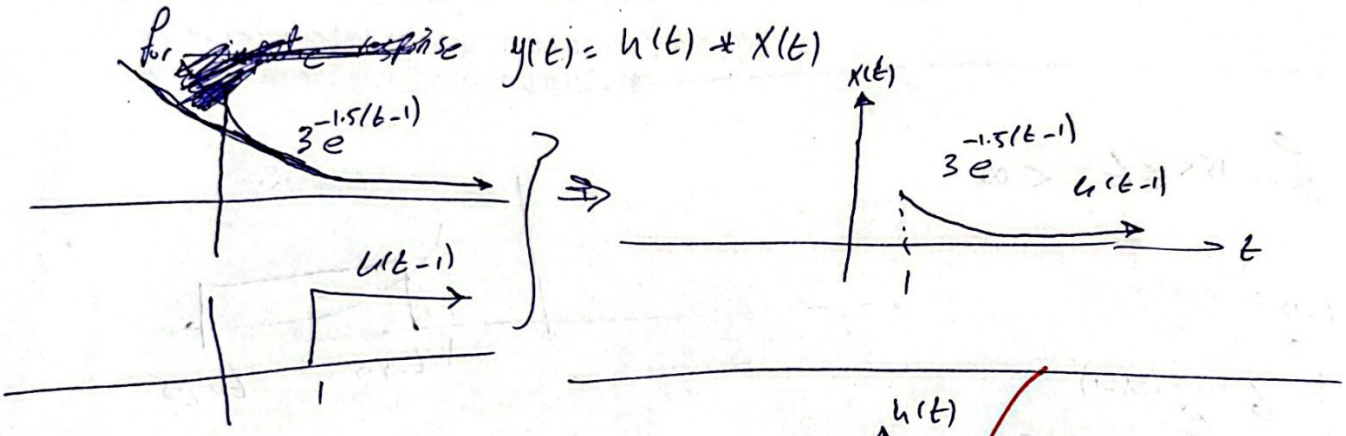
جامعة بيرزيت
BIRZEIT UNIVERSITY

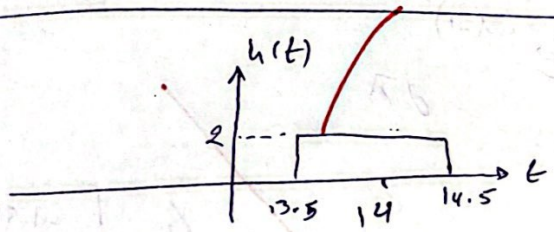
Faculty of Engineering
Electrical and Computer Engineering Department
Signal And Systems, ENEE2312
Quiz#2

Dr.Ashraf Al-Rimawi Date: 15/08/2024

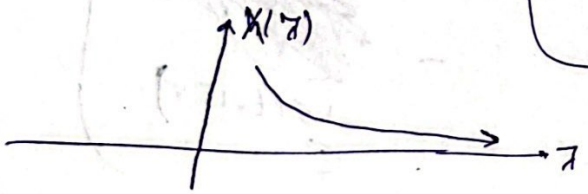
Problem #1:
Compute, using convolution integral, the response of the following LTI systems, with impulse response $h(t) = 2\,\Pi(t-14)$ to the input $x(t) = 3e^{-1.5(t-1)}u(t-1)$

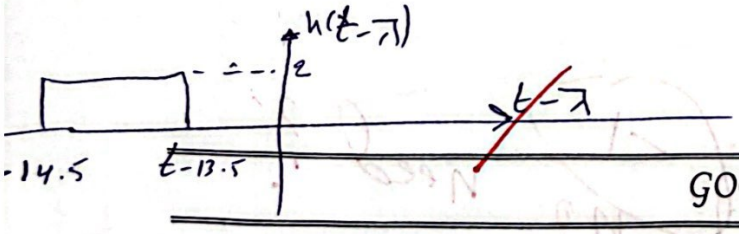
$y(t) = h(t) * x(t)$





then convert to $x(\tau)$, $h(t-\tau)$





interval $[1,\infty)$, $[13.5, 14.5]$

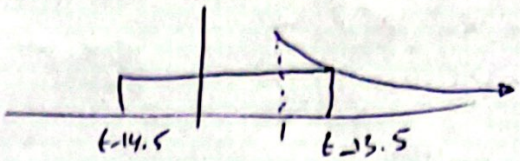
total interval $[14.5, 15.5, \infty)$

GOOD LUCK

for $t < 14.5$

$y = 0$

for $14.5 \le t < 15.5$



$$y = \int_{1}^{t-13.5} e(3)\, e^{-1.5(\lambda-1)}\, d\lambda$$

$$= \frac{6}{-1.5} e^{-1.5(\lambda-1)} \Big|_{1}^{t-13.5} = -4\left[e^{-1.5(t-14.5)} - e^{-1.5(0)}\right]$$

$$= -4\left[e^{-1.5(t-14.5)} - 1\right]$$

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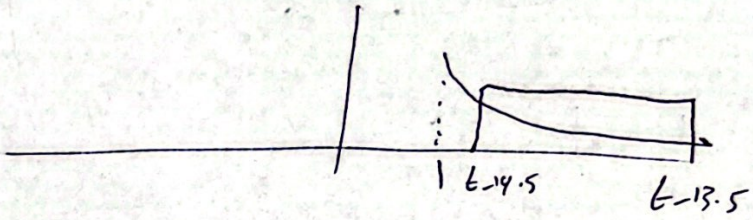
for $15.5 \le t < \infty$



$$y = \int_{t-14.5}^{t-13.5} 6\, e^{-1.5(\lambda-1)}\, d\lambda$$

$$= \frac{6}{-1.5}\left[e^{-1.5(t-14.5)} - e^{-1.5(t-15.5)}\right]$$

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for $t > \infty$ there is no interval

-1 no need ?!

$t > \infty$

done.

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Quiz#4

Dr.Ashraf Al-Rimawi Date:22/08/2024

Problem #1: Consider signal $x(t) = \sum_{n=-\infty}^{\infty} \Lambda\big(2(t-5n)\big)$ multiplies with $c(t) = 1 + \cos(100\pi t)$ to produce $y(t) = x(t)c(t)$

a. Evaluate and plot the spectrum of $x(t)$, and $c(t)$
b. Evaluate and plot the spectrum of $y(t)$

GOOD LUCK