EEE 202 Exam #2 Spring 2021 A.A. Rodriguez

For each of the following circuits:

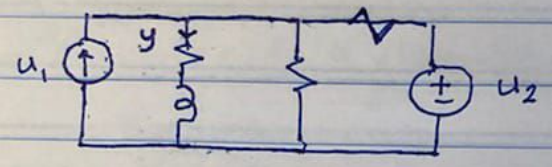
(a) Relate y to input (s) in s-domain

Specify/address (b) transfer functions (c) differential equation

(d) stability (e) poles (f) settling time

(Note: All R=L=C=1!) (g) $y(t)$ (h) $y_{ss} = \lim_{t\to\infty} y(t)$ (y for large t)

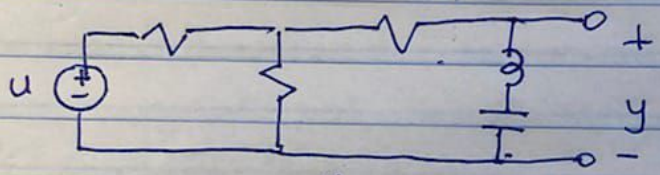
1



$u_1 = (1 + \sin 100t)\,1(t)$

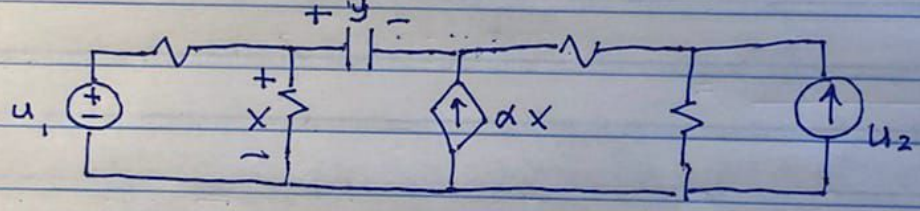
$u_2 = 10\,1(t)$

2



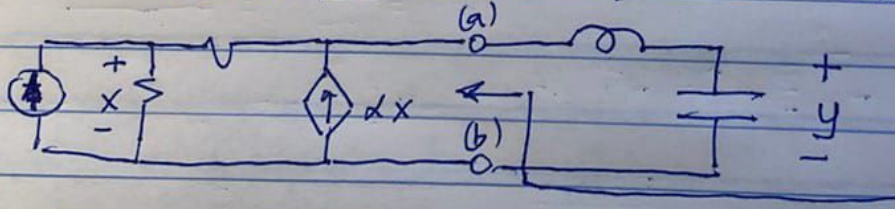
$u = 1 + \sin(t + 30^\circ)$

3



Use $\alpha = 3$ $u_1 = 1(t)$ $u_2 = -2.9\,1(t)$

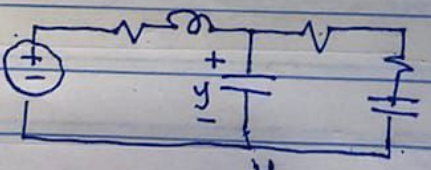
4



Use $\alpha = 3$ $u = -\frac{1}{2}\,1(t)$

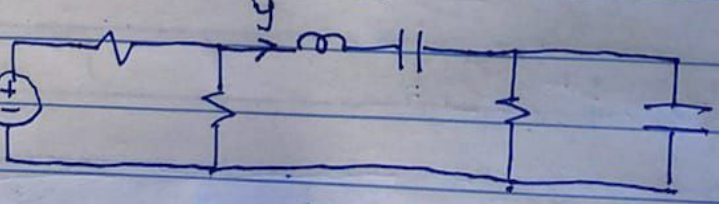
Hint: Find Thevenin Equivalent to left of terminals (a), (b)

5



$u = [1 + \sin 100t]\,1(t)$

6



$u = [1 + \sin t + \cos(100t + 30^\circ)]\,1(t)$

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