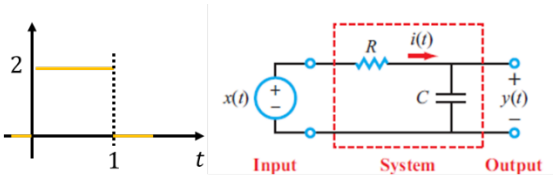
ELCT 222
Signals and Systems
Computer Assignment 2

Important:

- This assignment must be typed (e.g., a Word document) – no handwritten work accepted.
- Providing only MATLAB code or only MATLAB output without any discussion will receive 0 points.
- Unclear or illegible work will not receive full credit.
- For answers, provide your discussions or your approach to solving the problems and describe in clear English how your routine works in a few sentences.
- Include MATLAB code at the END of the assignment as an appendix.
- Label all axes in MATLAB.

1. Consider the system below for two cases (i) $RC = 0.1$ and (ii) $RC = 1$. For both cases
   a. (25 pts) Calculate the output signal analytically
   b. (25 pts) Plot the output and input signals on the same figure for each case and compare the cases in terms of response time. Which one is following the input signal? Why?



2. For $x(t)$ and $h(t)$ given below:
   a. (10 pts) Determine $y(t) = x(t) * h(t)$ for arbitrary A, B, T_1, and T_2
   b. (40 pts) Develop a MATLAB routine to plot $y(t) = x(t) * h(t)$ for the cases below:
      i. $A = 1, B = 1, T_1 = 1$, and $T_2 = 1$
      ii. $A = 1, B = 1, T_1 = 2$, and $T_2 = 2$
      iii. $A = -1, B = -1, T_1 = 1$, and $T_2 = 2$
      iv. $A = 1, B = -1, T_1 = 2$, and $T_2 = 1$