ECE250: Signals and Systems

Quiz 10 (29/11/2022)
Max. Marks: 10
Time: 30min

Note: Please Provide proper mathematical justifications with your answers. No marks will be awarded without a valid justification.

1. (CO5) (10 Marks) Suppose the following facts are given about the signal $x(t)$ with Laplace transform $X(s)$:

   (a) $X(s)$ has four poles and no zeros in the finite $s - plane$.
   (b) All poles are complex.
   (c) $x(t)$ is real and even.
   (c) $X(s)$ has a pole at $s = (1/4)e^{j\pi/3}$.
   (d) $\int_{-\infty}^{\infty} x(t)dt = 8$

   (i) (6 Marks) Determine $X(s)$ with the possible ROC.
   (ii) (4 Marks) Determine $x(t)$.

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