# EE3210 Signals and Systems

## Tutorial 12

**Problem 1:** An absolutely integrable signal $x(t)$ is known to have a Laplace transform with a pole at $s = 2$. Answer the following questions:

(a) Could $x(t)$ be of finite duration?

(b) Could $x(t)$ be left sided?

(c) Could $x(t)$ be right sided?

(d) Could $x(t)$ be two sided?

**Problem 2:** Determine the inverse Laplace transform of

$$X(s) = \frac{2(s+2)}{(s+3)(s+4)}$$

with the ROC specified as

(a) $\text{Re}\{s\} > -3$

(b) $\text{Re}\{s\} < -4$

(c) $-4 < \text{Re}\{s\} < -3$

**Problem 3:** Consider a signal $y(t)$ which is related to two signals $x_1(t)$ and $x_2(t)$ by

$$y(t) = x_1(t-2) * x_2(-t+3)$$

where

$$x_1(t) = e^{-2t}u(t) \quad \text{and} \quad x_2(t) = e^{-3t}u(t).$$

Determine the Laplace transform $Y(s)$ of $y(t)$.