13.7 Use the time-shifting theorem to determine $\mathcal{L}[f(t)]$, where $f(t) = [t - 1 + e^{-(t-1)}]u(t-1)$. PSV

SOLUTION:

Let $g(t) = (t + e^{-t})u(t)$ $\quad G(s) = \frac{1}{s^2} + \frac{1}{s+1}$

$F(s) = e^{-s}G(s) \Rightarrow$ $\quad \boxed{F(s) = e^{-s}\left[\frac{1}{s^2} + \frac{1}{s+1}\right]}$