

Errata:

Multiple Choice Q.3 \Rightarrow last answer should be (g)

For part 3(g) at bottom of pg. 6 $\Rightarrow z(t) = 10x(t) + jy(t)$

10 is missing

\Rightarrow it should be there in the block diagram too

Additional Fourier Transform Properties:

$$x(t) \cos(\omega_0 t) \xleftrightarrow{\mathcal{F}} \frac{1}{2} X(\omega - \omega_0) + \frac{1}{2} X(\omega + \omega_0)$$

$$x(t) \sin(\omega_0 t) \xleftrightarrow{\mathcal{F}} \frac{1}{2j} X(\omega - \omega_0) - \frac{1}{2j} X(\omega + \omega_0)$$

For a complex-sinusoidal input turned-on forever:

$$x(t) = e^{j\omega_0 t} \rightarrow \boxed{\begin{array}{c} \text{LTI} \\ h(t) \end{array}} \rightarrow H(\omega_0) e^{j\omega_0 t}$$

$$h(t) \xleftrightarrow{\mathcal{F}} H(\omega) \quad \text{and} \quad H(\omega_0) = H(\omega) \Big|_{\omega = \omega_0}$$