Concept Question 3-9: Why is it that zeros of the transfer function have no bearing on system stability?

The partial fraction expansion of the transfer function is a sum of terms of forms $\mathbf{C}_i/(\mathbf{s} - \mathbf{p}_i)$ where $\mathbf{p}_i$ are its poles.

Its zeros affect only the constants $\mathbf{C}_i$. The inverse Laplace transform of the transfer function, the impulse response, is a sum of terms $\mathbf{C}_i e^{\mathbf{p}_i t} u(t)$, and the system is stable only if all of the $\mathbf{p}_i$ are in the left half-plane.