

**Concept Question 7-4:** What is the Smith-Barnwell condition?

The Smith-Barnwell condition on the scaling function  $g[n]$  is the condition for perfect reconstruction of a signal from its wavelet transform, provided the wavelet function  $h[n]$  and  $g[n]$  form a quadrature mirror filter (QMF) pair. See Section 7-5.3.