

Pre-quiz:

The following questions will help us evaluate the effectiveness of the J-DSP collaborative simulations software in teaching signal processing concepts. The questions are related to the concepts used in the sample exercises.

Please choose the most appropriate answer.

- 1. A pole in a system's transfer function tends to create**
 - a) a peak in the frequency response magnitude plot
 - b) a valley in the frequency response magnitude plot
 - c) both (a) and (b)
 - d) none of the above

- 2. The output of an LTI system is its impulse response when the input of the system is**
 - a) a delta signal
 - b) an impulse signal
 - c) Both (a) and (b)
 - d) None of the above

- 3. A pole placed exactly on the unit circle (in z-plane) results in**
 - a) a stable system
 - b) an unstable system
 - c) a time invariant system
 - d) none of the above

- 4. An unstable system with a pole located at (x,y) in the z-domain can be made stable by placing**
 - a) another pole at $(x,-y)$
 - b) a zero at (x,y)
 - c) another pole at $(-x,-y)$
 - d) a zero at $(-x,-y)$

- 5. The peak in the magnitude frequency response of a filter system with single pole P_I in its transfer function can be narrowed by**

- a) introducing a zero at the same location as that of P_l
 - b) moving P_l away from the unit circle
 - c) moving P_l closer to the unit circle
 - d) none of the above
- 6. Peak picking or picking a few largest components in the frequency domain version of a signal to reconstruct the time domain signal is based on the**
- a) Cauchy-residue theorem
 - b) Parseval's theorem
 - c) Sampling theorem
 - d) none of the above
- 7. F is the frequency domain version of the speech signal S . If F consists of N components, which one of the following options when used to reconstruct S , would result in better speech quality?(note $n < N$)**
- a) the largest n components of F
 - b) the first n components of F
- 8. In question 7, if F contained 256 components, which one of the following options when used to reconstruct S , would result in best speech quality**
- a) first 8 components
 - b) highest 8 components
 - c) highest 64 components
 - d) first 64 components
- 9. The Peak-picking analysis-synthesis process cannot be used to compress speech signals**
- a) True
 - b) False