

Name: _____ Hall Ticket No.

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Answer All Questions. All Questions Carry Equal Marks. Time: 20 Min. Marks: 10.**I Choose the correct alternative:**

1. Number of levels available for quantizing $x(n)$ is []
A. 2^{b+1} B. 2^b C. 2^{b-1} D. 2^{1-b}
2. 2's complement of $(0.875)_{10}$ is []
A. 1.111 B. 1.001 C. 1.101 D. 1.100
3. What is the range of truncation quantization for fixed point arithmetic []
A. $0 < e < -2^{-b}$ B. $-2^{-b} < e < -2^b$ C. $-2^b < e < 0$ D. $-2^{-b} < e < 0$
4. The desired frequency response of an FIR filter can be represented by the Fourier series $H_d(e^{j\omega}) =$ []
A. $\sum_{n=-\infty}^{\infty} hd(n)e^{-j\omega n}$ B. $\sum_{n=-\infty}^{\infty} hd(n)e^{j\omega n}$
C. $\sum_{n=0}^{\infty} hd(n)e^{-j\omega n}$ D. $\sum_{n=-\infty}^{\infty} hd(n)e^{-j\omega n}$
5. Spectrum of rectangular window is represented as $W_R(e^{j\omega}) =$ []
A. $\frac{\sin W}{\sin W/2}$ B. $\frac{\sin W/2}{\sin WN/2}$ C. $\frac{\sin WN/2}{\sin W}$ D. $\frac{\sin WN/2}{\sin W/2}$
6. Which of the window is the best window in digital filter design []
A. Rectangular Window B. Triangle Window
C. Kaiser Window D. Blackman Window
7. A decimator uses a filter called []
A. Low pass Filter B. High pass Filter C. ~~Bandpass Filter~~ D. Anti-aliasing Filter
8. In Chebyshev approximation, at the cutoff frequency, the normalized magnitude response has a value of []
A. $\frac{1}{\sqrt{1-\epsilon^2}}$ B. $\frac{1}{\sqrt{1+\epsilon^2}}$ C. $1+\epsilon^2$ D. $1-\epsilon^2$
9. The Sampling rate of a discrete time signal can be increased by a factor L by placing _____ equally spaced zeros between each pair of samples []
A. L-1 B. L C. L+1 D. 1/L
10. The width of the main lobe in window spectrum of FIR filter can be reduced by []
A. Decreasing the amplitude of window sequence
B. Increasing the amplitude of window sequence
C. Decreasing the length of window sequence
D. Increasing the length of window sequence.

II Fill in the blanks

11. What are the methods used to prevent over flow _____ .
12. What are the advantages of floating point arithmetic_____.
13. IIR digital filters have the transfer function of the form $H(z)=$ _____
14. SNR for the quantization effect in DFT is_____.
15. The rectangular window sequence $W_R(n)=$ _____.
16. Triangular window has a transition width _____ that of rectangular window.
17. IIR filter are of recursive type, where the present output sample depends on the _____.
18. The poles of the Butterworth transfer function symmetrically lies on an unit circle in s-lane with angular spacing of _____.
19. Interpolator requires a filter to remove_____
20. A sampling rate converter by I/D uses the interpolator first to preserve the _____of the signal.

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