

SEM	SET	PAPER CODE	TITLE OF THE PAPER
II	2014	14PEL2106	DIGITAL SIGNAL PROCESSING

SECTION - A**Answer all the questions:****30 × 1 = 30****Choose the correct answer:**

- In matrix method, if $x(n)$ is N_1 and $h(n)$ is N_2 , then the matrix X can be obtained whose order will be _____.
a) $(N_1 + N_2 - 1) \times N_2$ b) $(N_1 - N_2 - 1) \times N_2$
c) $(N_1 + N_2 + 1) \times N_2$ d) $(N_1 - N_2 + 1) \times N_2$
- The multiplication of two DFTs is equal to circular convolution of two sequences in the _____ domain.
a) circular shift b) frequency c) time d) time reversal
- When input data sequences is long _____ convolution is preferred.
a) circular b) section c) matrix d) DFT – IDFT
- In order to perform circular convolution, the length of impulse response must be equal to length of the _____ subblock.
a) data b) impulse c) structure d) sequence
- In case of overlap – add method, $M - 1$ zeros are added at the _____ of the each block of data.
a) first b) end c) middle d) both first and end
- The Fast Fourier Transform algorithm exploit the DFT structure by employing a _____ paradigm.
a) matrix multiplication b) divide-and-conquer
c) adding more data sets d) cyclic
- The oscillatory behavior near the band edge of the filter characteristics graph is called the _____ phenomenon.
a) Gibbs b) Hanning c) Hamming d) Blackman

8. The major advantages of frequency sampling method lies in the efficient frequency sampling structure, which is obtained when most of the frequency samples are _____.
- a) 0 b) 1 c) < 1 d) > 1
9. When the filter design contains the maximum number of alternations, it is called a maximal _____ filter.
- a) antisymmetry b) symmetry c) ripple d) equiripple
10. The window method design suffer with important problem of lack of precise control of the critical frequencies such as _____.
- a) ω_P only b) both ω_P and ω_S
c) ω_S only d) either ω_P or ω_S
11. When the phase characteristics of linear – phase Fir filter for $h(n) = -h(M-1-n)$, then unit sample response is _____.
- a) unit antisymmetric b) unit symmetric
c) symmetric d) antisymmetric
12. The window technique that has approximate transition width of main lobe is $4\pi / M$ and peak side lobe is -13dB is called as _____.
- a) rectangular b) bartlett c) hanning d) hamming
13. For effective conversion of analog filter into digital filter,
- A) The $j\Omega$ axis in the s-plane should map into the unit circle in the z-plane
B) The left-half plane of the s-plane should map into the inside of the unit circle in the z-plane
- a) A should be satisfied
b) b should be satisfied
c) A and B should be satisfied
d) either A or B should be satisfied
14. The bilinear transformation is a conformal mapping that transforms the $j\Omega$ axis into the unit circle in the z-plane, thus avoiding _____ of frequency components.
- a) impulse variance b) aliasing
c) trapezoidal d) numerical integration

15. _____ method is inappropriate for designing high pass IIR filter.
- a) impulse variance b) approximation of derivatives
c) bilinear transformation d) chebyshev filter
16. _____ type of filter are all-pole filters that exhibit equiripple behaviour in the pass band and a monotonic characteristics in the stop band.
- a) elliptic b) bessel c) chebyshev d) butterworth
17. When a continuous time signal $X_a(t)$ with spectrum $X_a(F)$ is sampled at a rate F_s , the aliasing occurs if the sample rate F_s is _____ than the highest frequency contained in $X_a(F)$.
- a) zero b) less c) greater d) unity
18. If a low pass filter with pass band edge frequency Ω_p and converted to another lowpass filter with pass band edge frequency Ω'_p , then the transformation is $S \rightarrow$
- a) $1 + (\Omega_p / \Omega'_p) S$ b) $1 - (\Omega_p / \Omega'_p) S$
c) $(\Omega_p / \Omega'_p) S - 1$ d) $(\Omega_p / \Omega'_p) S$
19. In sign – magnitude format, the _____ is set to 1 to represent the negative sign.
- a) LSB b) MSB c) sign bit d) AC bit
20. If a computer with a word size of 32 bits to represent the positive integers beginning with zero, the largest possible integer that can be accommodated is _____.
- a) $2^{32} - 1$ b) $2^{32} + 1$ c) $2^{31} - 1$ d) $2^{31} + 1$
21. Quantization of coefficients does not affect the phase characteristics of the Fir filter, but affects only the _____.
- a) exponent b) mantissa c) frequency d) magnitude
22. The process of converting a signal from a given rate to a different rate is called as _____ conversation.
- a) multi rate b) sampling rate
c) single rate to multi rate d) multirate to single rate
23. To preserve the desired spectral characteristics of $x(n)$,
- (A) interpolation performed first and decimation second
(B) decimation performed first and interpolation second

- a) step A is followed
 - b) step B is followed
 - c) step A followed first and Step B second
 - d) step B followed first and Step A second
24. The sample rate factor is increased by an integer factor I is called as _____.
- a) interpolation
 - b) intrapolation
 - c) internetpolation
 - d) intranetpolation
25. Assertion (A): In an adult male, the vocal tract is 17cm long.
Reason (R): The normal resonant modes of vibration of the vocal tract are called as formats.
- a) both (A) and (R) are true and (R) is the correct explanation of (A)
 - b) both(A)and(R) are true but(R) is not the correct explanation of (A)
 - c) (A) is true and (R) is false
 - d) (A) is false and (R) is true
26. The main objective of speech analysis system is to measure the outputs of _____ filter banks and reconstruct the speech from these signals.
- a) bandpass
 - b) bandreject
 - c) narrow bandpass
 - d) band eliminator
27. Moving targets can be identified by using the _____ effect.
- a) scaling
 - b) scanning
 - c) doppler
 - d) doping
28. In telephony, single-sideband signal in each channel occupies a 4KHz bandwidth, then its Nyquist rate is _____ KHz.
- a) 4
 - b) 8
 - c) 12
 - d) 6
29. The bandwidth of the audio signal is around _____ KHz.
- a) 2
 - b) 4
 - c) 6
 - d) 8
30. _____ is required at the receiver side because in the transmitter compression or coding is done.
- a) synthesis
 - b) analysis
 - c) filtering
 - d) framing
