

## Questions Set - 2

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1) The cost of the digital processors is cheaper because

- Processor allows time sharing among a number of signals
- The hardware is cheaper
- Require less maintenance
- Less power consumption

**ANSWER: Processor allows time sharing among a number of signals**

**Explanation:**

No explanation is available for this question!

2) The operations that may be performed on vectors in

- Inner product, distance between vectors
- Norm of a vector, orthogonal vectors
- Orthonormal functions
- Vector division

- 1, 2 and 3 are correct
- 1 and 2 are correct

**Explanation:**

No explanation is available for this question!

**3) The norm or length of a signal is given by**

- The square of the energy of the signal
- The square root of the energy of the signal
- The inverse of the energy of the signal
- The cube root of the energy of the signal

**ANSWER: The square root of the energy of the signal**

**Explanation:**

No explanation is available for this question!

**4) The principle of Gram-Schmidt Orthogonalization (G) can be expressed as**

- Summation of  $N$  ortho normal basis functions, where  $N \leq M$ .
- Linear combinations of  $N$  ortho normal basis functions, where  $N \leq M$ .
- Product of logarithmic combinations of  $N$  ortho normal basis functions, where  $N \leq M$ .
- Product of inverse squares of  $N$  ortho normal basis functions, where  $N \leq M$ .

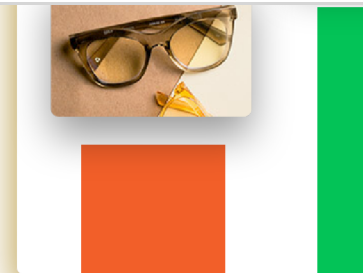
**ANSWER: Linear combinations of  $N$  ortho normal basis functions, where  $N \leq M$ .**

**Explanation:**

No explanation is available for this question!

**5) A signal  $x[n]$  is anti symmetric or odd when**

- $x[-n] = x[n] \cdot x[n]$
- $x[n] = -x[n]$
- $x[n] = [x[n]]^2$
- $x[-n] = -x[n]$



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**6) Time shifting of discrete time signal means**

- a.  $y[n] = x[n-k]$
- b.  $y[n] = x[-n-k]$
- c.  $y[n] = -x[n-k]$
- d.  $y[n] = x[n+k]$

Answer Explanation Related Ques

**ANSWER:  $y[n] = x[n-k]$**

**Explanation:**

No explanation is available for this question!

**7) Time reversal of a discrete time signal refers to**

- a.  $y[n] = x[-n+k]$
- b.  $y[n] = x[-n]$
- c.  $y[n] = x[-n-k]$
- d.  $y[n] = x[n-k]$

Answer Explanation Related Ques

**ANSWER:  $y[n] = x[-n]$**

**Explanation:**

No explanation is available for this question!

**8) Causal systems are the systems in which**

- a. The output of the system depends on the present and the past inputs
- b. The output of the system depends only on the present inputs



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c. The output of the system depends only on the past inputs



d. The output of the system depends on the present input as well as the previous output

[Answer](#) [Explanation](#) [Related Ques](#)

**ANSWER: The output of the system depends on the present and the past inputs**

**Explanation:**

No explanation is available for this question!

9) The basic properties of DFT includes

- 1) Linearity
- 2) Periodicity
- 3) Circular symmetry
- 4) Summation

**ANSWER: 1, 2 and 3 are correct**

**Explanation:**

No explanation is available for this question!

**10) Padding of zeros increases the frequency resolution.**

- a. True
- b. False

Answer Explanation Related Ques

**ANSWER: False**

**Explanation:**

No explanation is available for this question!

**11) Circular shift of an N point is equivalent to**

- a. Circular shift of its periodic extension and its vice versa
- b. Linear shift of its periodic extension and its vice versa
- c. Circular shift of its aperiodic extension and its vice versa
- d. Linear shift of its aperiodic extension and its vice versa

Answer Explanation Related Ques

**ANSWER: Linear shift of its periodic extension and its vice versa**

**Explanation:**

No explanation is available for this question!

**12) The circular convolution of two sequences in time domain is equivalent to**

- a. Multiplication of DFTs of two sequences
- b. Summation of DFTs of two sequences



**Explanation:**

No explanation is available for this question!

**13) For the calculation of N- point DFT, Radix -2 FFT algorithm repeats**

- a.  $2(N \log_2 N)$  stages
- b.  $(N \log_2 N)^2/2$  stages
- c.  $(N \log_2 N)/2$  stages
- d.  $(N \log_2(2N))/2$  stages

[Answer](#)[Explanation](#)[Related Ques](#)**ANSWER:  $(N \log_2 N)/2$  stages****Explanation:**

No explanation is available for this question!

**14) Radix - 2 FFT algorithm performs the computation of DFT in**

- a.  $N/2 \log_2 N$  multiplications and  $2 \log_2 N$  additions
- b.  $N/2 \log_2 N$  multiplications and  $N \log_2 N$  additions
- c.  $\log_2 N$  multiplications and  $N/2 \log_2 N$  additions
- d.  $N \log_2 N$  multiplications and  $N/2 \log_2 N$  additions

[Answer](#)[Explanation](#)[Related Ques](#)**ANSWER:  $N/2 \log_2 N$  multiplications and  $N \log_2 N$  additions****Explanation:**

No explanation is available for this question!

**15) The overlap save method is used to calculate**

- a. The discrete convolution between a sampled signal and a finite impulse response (FIR)
- b. The discrete convolution between a sampled signal and an infinite impulse response (IIR)
- c. The discrete convolution between a very long signal and a finite impulse response (FIR)
- d. The discrete convolution between a very long signal and an infinite impulse response (IIR)



**16) Overlap-Add Method Deals with principles that**

- a. The linear convolution of a discrete-time signal of length  $L$  and a discrete-time signal of length  $M$  produces a discrete-time convolved result of length  $L + M - 1$
- b. The linear convolution of a discrete-time signal of length  $L$  and a discrete-time signal of length  $M$  produces a discrete-time convolved result of length  $L + M$
- c. The linear convolution of a discrete-time signal of length  $L$  and a discrete-time signal of length  $M$  produces a discrete-time convolved result of length  $2L + M - 1$
- d. The linear convolution of a discrete-time signal of length  $L$  and a discrete-time signal of length  $M$  produces a discrete-time convolved result of length  $2L + 2M - 1$

Answer

Explanation

Related Ques

**ANSWER: The linear convolution of a discrete-time signal of length  $L$  and a discrete-time signal of length  $M$  produces a discrete-time convolved result of length  $L + M - 1$**

**Explanation:**

No explanation is available for this question!

**17) ROC does not have**

- a. zeros
- b. poles
- c. negative values
- d. positive values

Answer

Explanation

Related Ques

**ANSWER: poles**

**Explanation:**

No explanation is available for this question!

**18) Damping is the ability of a system**

- a. To support oscillatory nature of the system's transient response
- b. To oppose the continuous nature of the system's transient response



**Explanation:**

No explanation is available for this question!

**19) The condition for a system to be causal is**

- a. All poles of its transfer function must be left half of s-plane
- b. All poles of its transfer function must be right half of s-plane
- c. All zeros of its transfer function must be right half of s-plane
- d. All zeros of its transfer function must be left half of s-plane

[Answer](#)[Explanation](#)[Related Ques](#)

**ANSWER: All poles of its transfer function must be right half of s-plane**

**Explanation:**

No explanation is available for this question!

**20) The condition for a system to be stable is**

- a. All poles of its transfer function lie on the left half of s-plane
- b. All poles of its transfer function must be right half of s-plane
- c. All zeros of its transfer function must be right half of s-plane
- d. All zeros of its transfer function must be left half of s-plane

[Answer](#)[Explanation](#)[Related Ques](#)

**ANSWER: All poles of its transfer function lie on the left half of s-plane**

**Explanation:**

No explanation is available for this question!

**21) Partial fraction method involves**

- a. Allotting coefficients
- b. Dividing the numerator by denominator to get fractions
- c. Dividing single fraction into parts
- d. None of the above





22) The factors formed for partial fraction are a combination of

- 1) Linear factors
- 2) Irreducible quadratic factors
- 3) Square roots
- 4) Cube roots

- a. 1, 2 and 3 are correct
- b. 1 and 2 are correct
- c. 2 and 3 are correct
- d. All the four are correct

Answer Explanation Related Ques

**ANSWER: 1 and 2 are correct**

**Explanation:**

No explanation is available for this question!

23) For a partial fraction method to be followed,

- 1) The degree of the numerator must be more than the degree of the denominator.
- 2) The factors formed for partial fraction are a combination of Linear factors and I factors.
- 3) The degree of the numerator must be less than the degree of the denominator.
- 4) The factors formed for partial fraction are a combination of Linear factors and S

- a. 1, 2 and 3 are correct
- b. 1 and 2 are correct
- c. 2 and 3 are correct
- d. All the four are correct

Answer Explanation Related Ques

**ANSWER: 2 and 3 are correct**

**Explanation:**

No explanation is available for this question!

c.  $1/(x-1) + 2/(x-1)^2 - 3/x^2$

d.  $1/(x+1) + 2/(x+1)^2 - 1/x$

Answer

Explanation

Related Ques

**ANSWER:**  $1/(x-1) + 2/(x-1)^2 - 1/x$ **Explanation:**

No explanation is available for this question!

**25) The impulse invariant method is obtained by**

- a. Sampling the impulse response of an equivalent analog filter
- b. Taking backward difference for the derivative
- c. Mapping from s-domain to z-domain
- d. Approximation of derivatives

Answer

Explanation

Related Ques

**ANSWER:** Sampling the impulse response of an equivalent analog filter**Explanation:**

No explanation is available for this question!

**26) The transformation technique in which there is one to one mapping from s-dc**

- a. Approximation of derivatives
- b. Impulse invariance method
- c. Bilinear transformation method
- d. Backward difference for the derivative

Answer

Explanation

Related Ques

**ANSWER:** Bilinear transformation method**Explanation:**

No explanation is available for this question!

#### 47) Compression of higher frequencies

- a. 1, 3 and 4 are correct
- b. 2 and 4 are correct
- c. 2 and 3 are correct
- d. All the four are correct

[Answer](#)[Explanation](#)[Related Ques](#)

**ANSWER: 1, 3 and 4 are correct**

**Explanation:**

No explanation is available for this question!

#### 28) The magnitude response of Butterworth filter has

- 1) Flat stop band
- 2) Flat pass band
- 3) Tapering pass band
- 4) Tapering stop band

- a. 1 and 2 are correct
- b. 2 and 4 are correct
- c. 2 and 3 are correct
- d. All the four are correct

[Answer](#)[Explanation](#)[Related Ques](#)

**ANSWER: 1 and 2 are correct**

**Explanation:**

No explanation is available for this question!

#### 29) In the cascaded form of realisation, the polynomials are factored into

- a. a product of 1st-order and 2nd-order polynomials
- b. a product of 2nd-order and 3rd-order polynomials
- c. a sum of 1st-order and 2nd-order polynomials
- d. a sum of 2nd-order and 3rd-order polynomials

**30) Parallel form of realisation is done in**

- a. High speed filtering applications
- b. Low speed filtering applications
- c. Both a and b
- d. None of the above

Answer Explanation Related Ques

**ANSWER: High speed filtering applications**

**Explanation:**

No explanation is available for this question!

**31) A partial-fraction expansion of the transfer function in  $Z^{-1}$  leads to**

- a. The parallel form II structure
- b. The parallel form I structure
- c. Cascaded structure
- d. None of the above

Answer Explanation Related Ques

**ANSWER: The parallel form I structure**

**Explanation:**

No explanation is available for this question!

**32) A direct partial-fraction expansion of the transfer function in  $Z$  leads to**

- a. The parallel form II structure
- b. The parallel form I structure
- c. Cascaded structure
- d. None of the above

Answer Explanation Related Ques

**ANSWER: The parallel form II structure**



- a. Phase
- b. Amplitude
- c. Frequency
- d. All of the above

[Answer](#)[Explanation](#)[Related Ques](#)

**ANSWER: Frequency**

**Explanation:**

No explanation is available for this question!

**34) A filter is said to be linear phase filter if the phase delay and group delay are .**

- a. High
- b. Moderate
- c. Low
- d. Constant

[Answer](#)[Explanation](#)[Related Ques](#)

**ANSWER: Constant**

**Explanation:**

No explanation is available for this question!

**35) Which among the following has/have a provision to support an adaptive filter**

- a. IIR
- b. FIR
- c. Both a and b
- d. None of the above

[Answer](#)[Explanation](#)[Related Ques](#)

**ANSWER: Both a and b**

**Explanation:**

No explanation is available for this question!

d. None of the above

Answer Explanation Related Ques

**ANSWER: Both a and b**

**Explanation:**

No explanation is available for this question!

**37) In direct form realization for an interpolator, which among the following generate signal?**

- a. Upsampler
- b. Downsampler
- c. Anti-imaging filter
- d. Anti-aliasing filter

Answer Explanation Related Ques

**ANSWER: Upsampler**

**Explanation:**

No explanation is available for this question!

**38) To change the sampling rate for better efficiency in two or multiple stages, The interpolation factors must be \_\_\_\_\_ unity.**

- a. Less than
- b. Equal to
- c. Greater than
- d. None of the above

Answer Explanation Related Ques

**ANSWER: Greater than**

**Explanation:**

No explanation is available for this question!

u. None of the above

Answer

Explanation

Related Ques

**ANSWER: Instruction Address**

**Explanation:**

No explanation is available for this question!

**40) In DAGs, which register/s provide/s increment or step size for index register (i) register move?**

- a. Index Register
- b. Length & Base Register
- c. Modify Register
- d. All of the above

Answer

Explanation

Related Ques

**ANSWER: Modify Register**

**Explanation:**

No explanation is available for this question!

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