These are sample MCQs to indicate pattern, may or may not appear in examination

University of Mumbai
Online Examination 2020

Program: TE Electronics and Telecommunication Engineering

Curriculum Scheme: Revised 2016

Examination: Third Year Semester V

Course Code: ECC 504 and Course Name: Discrete Time Signal Processing

Time: 1 hour Max. Marks: 50

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Note to the students:- All the Questions are compulsory and carry equal marks .

Q1.	If DFT of x(n) is X(K) then DFT of x(n-N/2) as per half period shift property of DFT is
Option A:	X(K)
Option B:	-X(K)
Option C:	(-1)^k. X(K)
Option D:	2X(K)
Q2.	The circular convolution of two sequences in time domain is equivalent to
Option A:	Multiplication of DFTs of two sequences
Option B:	Summation of DFTs of two sequences
Option C:	Difference of DFTs of two sequences
Option D:	Square of multiplication of DFTs of two sequences
Q3.	If sequence is imaginary and odd the DFT is
Option A:	Real and Even
Option B:	Imaginary and odd
Option C:	Imaginary and even
Option D:	Real and Odd
Q4.	If X(k) is the N-point DFT of a sequence x(n), then what is the DFT of x*(n)? (note that X*(k) is complex conjugate of X(K))
Option A:	X(N-k)
Option B:	X*(k)
Option C:	X*(N-k)
Option D:	X(k)
Q5.	In DIT FFT algorithm input is arranged in
Option A:	Normal order
Option B:	Reverse order
Option C:	Bit reversed order
Option D:	Either A or B

Q6.	The total number of complex additions required to compute N point DFT by radix-2 FFT is? (Note the base of all Log is 2)
Option A:	(N/2)log(N)
Option B:	(N/2)log(N*2)
Option C:	N log(N)
Option D:	N
Q7.	What is the relation between analog frequency(Ω) and digital frequency(ω) in impulse invariant method?
Option A:	Ω=ωT
Option B:	Ω=ω/T
Option C:	Ω=T/ω
Option D:	Ω=ω
Q8.	The methods used for designing IIR filters is
Option A:	Impulse Invarience Method
Option B:	Window method
Option C:	Kaiser Window
Option D:	Frequency Sampling Method
Q9.	Bilinear Transformation make use of……
Option A:	one to one mapping from s-domain to z-domain
Option B:	Sampling the impulse response of an equivalent analog filter
Option C:	Taking backward difference for the derivative
Option D:	Approximation of Derivatives
Q10.	Which of the following method is not used for designing IIR Filter
Option A:	Impulse Invariant Method
Option B:	Bilinear Transformation
Option C:	Approximation of Derivatives
Option D:	Window method
Q11.	In IIR digital filter the present output depends on
Option A:	Present input samples and past Inputs samples only
Option B:	Present input samples and past output samples only
Option C:	Present input samples only
Option D:	Present Input sample, Past input samples and output samples
Q12.	If N is Unquantised number and Nt is number obtained by truncation of Error is, Et =
Option A:	Nt-N
Option B:	Et-Nt
Option C:	N-Et
Option D:	N-Nt
Q13.	What is NTF

Option A:	Negative Transfer Function
Option B:	Noise Truncation Function
Option C:	Negative Truncation Function
Option D:	Noise Transfer Function
Q14.	Overflow limit cycle in output are oscillation due to which of following
Option A:	Overflow of Division
Option B:	Overflow of Subtraction
Option C:	Overflow of Multiplication
Option D:	Overflow of Addition
Q15.	Which type of architecture uses different storage space for program code and the data?
Option A:	Von Neumann architecture
Option B:	Harvard architecture
Option C:	Fragmented architecture
Option D:	Split cell architecture
Q16.	In DAGs, which register/s provide/s increment or step size for index register especially during the register move?
Option A:	Index Register
Option B:	Length & Base Register
Option C:	Modify Register
Option D:	Only Base Register
Q17.	In TMS 320 C6x processor architecture, which functional unit is adopted for transferring the data from register to and from control register?
Option A:	L2
Option B:	M2
Option C:	S2
Option D:	D2
Q18.	Which units are generally involved in Multiply and Accumulate (MAC)?
Option A:	Only Subtractor
Option B:	Multiplier
Option C:	Accumulator
Option D:	Both B & C
Q19.	Which of the following block is not required in digital processing of a RADAR signal?
Option A:	A/D converter
Option B:	D/A converter
Option C:	DSP
Option D:	Both A & B
Q20.	Typical DTMF frequencies range approximately from.
Option A:	1200 Hz to 1700 Hz
Option B:	700Hz to 1700 Hz

Option C:	700 Hz to 1200 Hz
Option D:	1200 Hz to 1700 Hz
Q21.	In DTMF 770Hz & 1633Hz Frequency combination related to
Option A:	A
Option B:	B
Option C:	C
Option D:	D
Q22.	In FIR filter design using Window method, which among the following parameters is/are separately controlled using Kaiser window?
Option A:	Order of filter (M)
Option B:	Shape of Window function
Option C:	Order of the filter (M) as well as Shape of window function
Option D:	Gain in passband and attenuation in stop band of the filter
Q23.	Which among the following represent/s the characteristic/s of an ideal filter?
Option A:	Infinite gain in passband
Option B:	Zero attenuation in stop band
Option C:	Constant gain in passband and zero gain in stopband
Option D:	Passes all frequencies at the input to output without attenuation
Q24.	The principle of Frequency Sampling method of FIR filter design is :
Option A:	DTFT $H(\omega)$ is used to find impulse response h(n) of the filter
Option B:	DFT samples H(k) are used to find impulse response h(n) of the filter
Option C:	System function H(z) is used to find impulse response h(n) of the filter
Option D:	Truncation of Fourier series coefficients is used to find impulse response h(n) of the filter
Q25.	Impulse response of linear phase FIR filter is h(n) ={ 1,2,3,2,1}. This filter is of:
Option A:	Type-I
Option B:	Type-II
Option C:	Type-III
Option D:	Type-IV