University of Mumbai

Program: **Electronics & Telecommunication Engineering**
Curriculum Scheme: Rev2016
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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For the students:- All the Questions are compulsory and carry equal marks .

Q1.	For N=2 …….W^13= ……(where W is Twiddel factor)	
Option A:	0	
Option B:	1	
Option C:	-1	
Option D:	j	
Q2.	IDFT of [5, 1] is	
Option A:	[1 , 2]	
Option B:	[2 , 3]	
Option C:	[3 , 2]	
Option D:	[2.5 , 2.5]	
Q3.	If DFT of x(n) is X(K) then IDFT of X(K-N/2) is	
Option A:	x(n)	
Option B:	-x(n)	
Option C:	(-1)^n.x(n)	
Option D:	2x(n)	
Q4.	If sequence is real and even the DFT is	
Option A:	Real and Even	
Option B:	Imaginary and odd	
Option C:	Imaginary and even	
Option D:	Real and Odd	
Q5.	Relation between DFT and Fourier series Coefficients Ck is given by	
Option A:	X(K)=Ck	
Option B:	X(K)=N*Ck	
Option C:	X(K)=(1/N)*Ck	
Option D:	N*X(K)=Ck	
Q6.	Which of the following is true regarding the number of computations required to compute an N-point DFT?	
Option A:	N*N complex multiplications and N(N-1) complex additions	
Option B:	N*N complex additions and N(N-1) complex multiplications	
Option C:	N*N complex multiplications and N(N+1) complex additions	
Option D:	N*N complex additions and N(N+1) complex multiplications	

Q7.	What is the circular convolution of the sequences X1(n)={2,1,2,1} and x2(n)={1,2,3,4}?	
Option A:	{14,14,16,16}	
Option B:	{16,16,14,14}	
Option C:	{2,3,6,4}	
Option D:	{14,16,14,16}	
Q8.	What is the order of analog butterworth filter which has 2dB passband attenuation at frequency 20rad/sec and 10dB stopband attenuation at at 30 rad/sec	
Option A:	4.37	
Option B:	3.37	
Option C:	6.37	
Option D:	7.37	
Q9.	Which transformaton is used for converting analog filter into digital filter in Bilinear Transformation method?	
Option A:	$S=\frac{2(Z-1)}{T(Z+1)}$	
Option B:	$S=\frac{T(Z-1)}{2(Z+1))}$	
Option C:	$S=\frac{2(Z+1)}{T(Z+1)}$	
Option D:	$S=\frac{4(Z-1)}{T(Z+1)}$	
Q10.	The frequency compression or frequency warping effect occur due to ----------	
Option A:	linearity of the arctangent function.	
Option B:	nonlinearity of the arctangent function.	
Option C:	nonlinearity of the impulse function.	
Option D:	linearity of the ramp function.	
Q11.	If the passband attenuation is 3dB at 1KHz and stopband attenuation is 16dB at 2KHz. What is the order of Chebyshev Filter?	
Option A:	1.91	
Option B:	3.91	
Option C:	4.91	
Option D:	5.91	
Q12.	IIR filters are ……..	
Option A:	Recursive	
Option B:	Norecursive	
Option C:	Reversive	
Option D:	Nonreversive	
Q13.	Maximum Size of binary that can be stored in register is called as	
Option A:	Register word length	
Option B:	Accumulator	
Option C:	Word Length	
Option D:	Digital Word	

Q14.	In the truncation of positive number, the truncation error is always	
Option A:	Undetermined	
Option B:	Positive	
Option C:	Negative	
Option D:	zero	
Q15.	Deadline is the finite value of the output when the recursive cycle enters to which cycle?	
Option A:	Infinite Cycle	
Option B:	Under cycle	
Option C:	Undetermined Cycle	
Option D:	Limit Cycle	
Q16.	The System output noise power due to product quantization error is called as	
Option A:	Roundoff	
Option B:	Rounding Off	
Option C:	Round Off Noise power	
Option D:	Round Off Noise Error	
Q17.	Which maintains the track of addresses of input data as well as the coefficients stored in data and program memories?	
Option A:	Data Address Generators	
Option B:	Program sequences	
Option C:	Barrel Shifter	
Option D:	MAC	
Q18.	What is the reason for the need of high speed DSP?	
Option A:	Less power consumption at higher speeds	
Option B:	Better processing capabilities	
Option C:	High sampling frequency	
Option D:	Easily programmable	
Q19.	The interface between an analog signal and a digital processor is	
Option A:	D/A converter	
Option B:	A/D converter	
Option C:	Modulator	
Option D:	Demodulator	
Q20.	Which is a typical application of digital signal processing?	
Option A:	Noise insertion	
Option B:	Music signal processing	
Option C:	Image processing	
Option D:	Both B & C	
Q21.	The radar in which the same antenna is used for both transmission and reception is called as …	
Option A:	Bistatic radar	
Option B:	Monostatic radar	

Option C:	Dipole radar	
Option D:	Monopole radar	
Q22.	Identify the following system as Minimum Phase, Maximum Phase , Mixed Phase or Linear Phase: H(z)=6+z^(-1)- z^(-2)	
Option A:	Minimum Phase	
Option B:	Maximum Phase	
Option C:	MixedPhase	
Option D:	Linear Phase	
Q23.	Identify the name of window function given by following equation: w(n) = 0.5 - 0.5 cos(2πn/M) over the length 0 ≤ n ≤ M	
Option A:	Rectangular	
Option B:	Hanning	
Option C:	Hamming	
Option D:	Bartlet	
Q24.	FIR filters are:	
Option A:	Non-recursive and do not adopt any feedback	
Option B:	Recursive and do not adopt any feedback	
Option C:	Non-recursive and adopt feedback	
Option D:	Recursive and adopt feedback	
Q25.	Which Linear phase FIR filter is suitable for all types of filters (Low pass, High pass, Band pass and Band stop)?	
Option A:	Impulse response h(n) is Symmetric and Order M is Even	
Option B:	Impulse response h(n) is Symmetric and Order M is Odd	
Option C:	Impulse response h(n) is Anti-Symmetric and Order M is Even	
Option D:	Impulse response h(n) is Anti-Symmetric and Order M is Odd	