Program: BE Electronics and Telecommunication Engineering

Curriculum Scheme: Revised 2016

Examination: Third Year Semester V

Course Code: ECC504 and Course Name: Discrete Time Signal Processing

Time: 1hour Max. Marks: 50

==========

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

Q1.	How many complex multiplications are need to be performed for each FFT algorithm?
Option A:	(N/2)logN
Option B:	Nlog2N
Option C:	(N/2)log2N
Option D:	(2N)log2N
Q2.	Overlap save method is used to find
Option A:	Circular convolution
Option B:	Linear convolution
Option C:	DFT
Option D:	Z-transform
Q3.	The 4-point DFT of {1,1,0,0}
Option A:	{2,0,2,0}
Option B:	{1, 2-j1, 1, 2+j1}
Option C:	{2, 1-j, 0, 1+j }
Option D:	{1, 2+j1, 1, 2-j1}
Q4.	The twiddle factor satisfies
Option A:	wk N= wk N/2
Option B:	wk+N/2 N= wk N
Option C:	wk+N N= -wk N
Option D:	wk+N/2 N= -wk N
Q5.	Which of the following is true in case of Overlap add method?
Option A:	M zeros are appended at last of each data block
Option B:	M zeros are appended at first of each data block
Option C:	M-1 zeros are appended at last of each data block
Option D:	M-1 zeros are appended at first of each data block

Q6.	If we split the N point data sequence into two N/2 point data sequences f1(n) and f2(n) corresponding to the even numbered and odd numbered samples of x(n), then such an FFT algorithm is known as
Option A:	decimation-in-frequency algorithm
Option B:	decimation-in-time algorithm
Option C:	decimation-in-samples algorithm
Option D:	Discrete time fourier transform
Q7.	Which of the IIR Filter design method is antialiasing method?
Option A:	The method of mapping of differentials
Option B:	Impulse invariant method
Option C:	Bilinear transformation
Option D:	Matched Z - transformation technique
Q8.	For a system function H(s) to be stable
Option A:	The zeros lie in left half of the s plane
Option B:	The zeros lie in right half of the s plane
Option C:	The poles lie in left half of the s plane
Option D:	The poles lie in right half of the s plane
Q9.	The s plane and z plane are related as
Option A:	$z = esT$
Option B:	$z = e2sT$
Option C:	$z = 2esT$
Option D:	$z = esT/2$
Q10.	If $s=\sigma+j\Omega$ and $z=rej\omega$, then what is the condition on σ if $r>1$?
Option A:	$\sigma > 0$
Option B:	$\sigma < 0$
Option C:	$\sigma > 1$
Option D:	$\sigma < 1$
Q11.	The IIR filter designing involves
Option A:	Designing of digital filter in analog domain and transforming into digital domain
Option B:	Designing of digital filter in digital domain and transforming into analog domain
Option C:	Designing of analog filter in analog domain and transforming into digital domain
Option D:	Designing of analog filter in digital domain and transforming into analog domain
Q12.	For Blackman window , with a length M, the main lobe width is
Option A:	$12\Pi/M$
Option B:	$8\Pi/M$
Option C:	$4\Pi/M$
Option D:	Variable
Q13.	Linear phase FIR filters have a constant
Option A:	Phase

Option B:	Group Delay
Option C:	Gain
Option D:	Angle
Q14.	For FIR filters, if the filter coefficients are symmetric in nature , it signifies
Option A:	A smaller transition bandwidth
Option B:	Less pass band ripple
Option C:	Less stop band ripple
Option D:	A linear phase response
Q15.	If the phase delay of a FIR filter is 3 then the ,length of the filter is
Option A:	3
Option B:	5
Option C:	9
Option D:	7
Q16.	For a filter , there is one pole at origin and a zero at 0.5, the type of the filter is,
Option A:	FIR filter
Option B:	IIR filter
Option C:	Unrealisable System
Option D:	Can be IIR and FIR both
Q17.	(25.678)=25.67 is an example of _____ and (25.678)=25.68 is an example of _____.
Option A:	Roundoff, Truncation
Option B:	Truncation, Roundoff
Option C:	Roundoff, Roundoff
Option D:	Truncation, truncation
Q18.	Why rounding is preferred than truncation for quantization.
Option A:	Quantization error will be more in rounding than in truncation
Option B:	Quantization error will be less in rounding than in truncation
Option C:	Rounding is easy
Option D:	Rounding required less time.
Q19.	In recursive system, which of the oscillation is caused because of the nonlinearities due to finite precision arithmetic operations?
Option A:	Periodic oscillations in the input
Option B:	Non-Periodic oscillations in the input
Option C:	Periodic oscillations in the output
Option D:	NonPeriodic oscillations in the output
Q20.	What is the dead band of a single pole filter which is represented by 4 bits and having a pole at ½.
Option A:	-1/2,1/2
Option B:	1/4,-1/4

Option C:	-1/8,1/8
Option D:	-1/16,1/16
Q21.	The number of Address buses in TMS320C54X processors are,
Option A:	1
Option B:	2
Option C:	3
Option D:	4
Q22.	Which of the following is not a part of TMS320C54X
Option A:	40 bit arithmetic logic unit
Option B:	40 bit control regulator
Option C:	40 bit accumulators
Option D:	40 bit barrel shifter
Q23.	In DSP processor DAG stands for
Option A:	Data Address Generator
Option B:	Digital Address Group
Option C:	Data Addition Group
Option D:	Digital Addition Generator
Q24.	Electrocardiography is the process of recording the electrical activity of
Option A:	heart
Option B:	lungs
Option C:	brain
Option D:	lever
Q25.	The basis of DTMF detector is
Option A:	Goertzel algorithm
Option B:	Logic circuit
Option C:	Randomized algorithm
Option D:	Divide and conquer algorithm