

Scheme	R2012
Semester	7
Course Code	CPC701
Course Name	Digital Signal Processing

Question No	Question	a	b	c	d	Answer Key
1	If $x(n)$ is a discrete-time signal, then the value of $x(n)$ at non integer value of 'n' is:	Zero	Positive	Negative	Not defined	Not defined
2	If $x(n)=[0,0,1,2,3,4,0,0]$ then $x(n-1)$ is:	(0,0,2,4,6,8,0,0)	(0,0,1,2,3,4,0,0)	(1,2,3,4,0,0,0,0)	(0,0,0,1,2,3,4)	(0,0,0,1,2,3,4)
3	Linear convolution can be used to find the response of	Rendering	Audio signal processi	Linear filtering.	Sorting	Linear filtering.
4	What is the Nyquist rate of the signal $x(t)=3\cos(50\pi t)+10\sin(300\pi t)-\cos(100\pi t)$?	50Hz	200Hz	300Hz	100Hz	300Hz
5	The circular convolution of two periodic signals represented by $x_1[n] = \{2, 1, 2, -1\}$ and $x_2[n] = \{1, 2, 3, 4\}$ is	{10, 10, 10, 6}	{10, 14, 10, 6}	{10, 6, 10, 14}	{10, 10, 6, 14}	{10, 10, 6, 14}
6	The impulse response of a linear time-invariant system is $h(n)=[4,5,6,7]$. Determine the response of the system to the input signal $x(n)=[1,2,3,4]$ (Origin:7 in $h(n)$ and 1 in $x(n)$)	{4,10,25,50,52,55,28} (Or	{30,43,23,26} (Origin	{4,13,28,50,52,45,28}	10,23,21,45,36,43} (C	{4,13,28,50,52,45,28} (Origin:50)
7	The sampling frequency of the following analog signal, $x(t)=4\sin 150\pi t + 2\cos 50\pi t$ is	Greater than 75 Hz	Less than 150 Hz	Greater than 150 Hz	Greater than 50 Hz	Greater than 150 Hz
8	A relaxed LTI system is one such that	zero input produces zero output	zero input produces	zero input produces n	none of the above	zero input produces zero output
9	A system is said to be defined as non causal, when	the output at the present depends on the input at an earlier time	the output at the present does not depend on the factor of time at all	the output at the present depends on the input at the current time	the output at the present depends on the input at a time instant in the future	the output at the present depends on the input at a time instant in the future
10	An LTI discrete time system is causal if and only if,	$h(n) \neq 0$ for $n < 0$	$h(n) = 0$ for $n < 0$	$h(n) \neq \infty$ for $n < 0$	$h(n) \neq 0$ for $n > 0$	$h(n) = 0$ for $n < 0$
11	Any arbitrary input signal can be decomposed and represented as a	product of unit sample se	product of unit step	weighted sum of unit step sequences.	weighted sum of unit	weighted sum of unit sample sequences.
12	Classify the given system as Time Variant/In-variant and Linear/Non-linear system $y(n)=nx(n)$	Time Variant and Linear	Time In-variant and L	Time Variant and Non	Time In-variant and N	Time In-variant and Linear
13	FIR filters _____ A. are non-recursive B. do not adopt any feedback C. are recursive D. use feedback	A & B	C & D	A & D	B & C	A & B
14	If the output of the system is infinity with an input of $x(n)$ then the system is	unstable	stable	finite	infinite	unstable
15	IIR and FIR systems stand for	Infinite Impulse Response and Finite Impulse Response	Infinite Impulse Request and Finite Impulse Response	Infinite Impulse Response and Finite Impulse Request	Infinite Impulse Request and Finite Impulse Request	Infinite Impulse Response and Finite Impulse Response
16	If $X(k)$ is the N-point DFT of a sequence $x(n)$, then what is the DFT of $x^*(n)$	$X(N-k)$	$X^*(k)$	$X^*(N-k)$	$X^*(-k)$	$X^*(N-k)$
17	Linearity property of DFT states that, $a.x_1(n) + b.x_2(n) =$	$a.X_1(n) + b.X_2(n)$	$a.X_1(n) - b.X_2(n)$	$X_1(n) + X_2(n)$	$X_1(n) * X_2(n)$	$a.X_1(n) + b.X_2(n)$
18	The $x(n)=[2,0,0,1]$, DFT of 4 point sequence is	$X(K)=[3,2+j,1, 2-j]$	$X(K)=[2,-2-2j,-2, -2+2$	$X(K)=[3,0,-2+2j,-2-2j]$	$X(K)=[6,-2-2j,2, -2+2$	$X(K)=[3,2+j,1, 2-j]$
19	What is $X(0)$ for four point sequence $x(n)=[0,1,2,3]$?	6	0	12	3	6
20	For a 16-point FFT, the number of complex multiplication and addition is	32 and 64 respectively	16 and 32 respective	80 and 160 respective	12 and 24 respective	32 and 64 respectively
21	Correlation is used for	quantization	sampling	folding	computing average p	computing average power in waveforms
22	DSPs often use special----- architectures that are able to fetch multiple data or instructions at the same time	memory	finite machine	dual	fast	memory
23	Overlap-add method is an efficient way to evaluate the discrete _____ of a very long signal with a finite impulse response filter	convolution	Correlation	transform	autocorrelation	convolution
24	Identify in which case positive correlation exist among the variables	Height & Weight	Price & Quatity dema	Exam score & TV watc	Height & IQ	Height & Weight
25	For N point FFT there are _____ complex additions	$N/2 \log_2 N$	$N/2$	$N \log_2 N$	N	$N \log_2 N$