Program: BE Computer Engineering

Curriculum Scheme: Revised 2012

Examination: Final Year Semester VII

Course Code: CPC701 and Course Name: Digital 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.	Which type of signal is defined for every value in time?
Option A:	Continuous time Signal
Option B:	Discrete time Signal
Option C:	Power Signal
Option D:	Energy Signal
Q2.	Unit Step Signal Series is given by: Note: The underlined number is at Origin
Option A:	{...0,0,0,1,0,0,0,...}
Option B:	{...0,0,0,1,1,1,1,...}
Option C:	{...1,1,1,1,0,0,0,...}
Option D:	{...1,0,0,1,0,0,1,...}
Q3.	Which type of signal has amplitude that can take any value in continuous range?
Option A:	Continuous time Signal
Option B:	Analog Signal
Option C:	Discrete time Signal
Option D:	Power Signal
Q4.	Linear Convolution of the signal x(n)={3,2,1,2} with h(n)={1,2,1,2} is given by: Note: The underlined number is at Origin
Option A:	{3,8,8,12,9,4,4}
Option B:	{3,8,8,12,9,4,4}
Option C:	{3,8,8,12,9,4,4}
Option D:	{3,8,8,12,9,4,4}
Q5.	Let x(n)={1,2,3,4}, with origin at 3, and y(n)=x(-n-2), then y(n) is given by:
Option A:	{4,3,2,1}
Option B:	{4,3,2,1}

Option C:	{4,2,3,1}
Option D:	{4,2,3,1}
Q6.	Ramp Signal Series is given by: Note: The underlined number is at Origin
Option A:	{...0,0,0,1,0,0,0,...}
Option B:	{...0,0,0,1,2,3,4,...}
Option C:	{...1,1,1,1,0,0,0,...}
Option D:	{...1,0,0,1,0,0,1,...}
Q7.	For practical implementation IIR system require
Option A:	Infinite memory
Option B:	Finite memory
Option C:	No requirement of memory
Option D:	Less memory
Q8.	FIR system directly implemented by
Option A:	Convolution Summation
Option B:	Correlation Summation
Option C:	Delayed Unit
Option D:	Advanced Unit
Q9.	y(n)= nx(n), determine the system is linear or non linear
Option A:	Linear
Option B:	Non linear
Option C:	Causal
Option D:	Non-Causal
Q10.	y(n)= Ax(n)+B, determine the system is linear or non linear
Option A:	Linear
Option B:	Non linear
Option C:	Causal
Option D:	Non-Causal
Q11.	By means of the DFT and IDFT, determine the response of the FIR filter with impulse response h(n)={1,2,3} to the input sequence x(n)={1,2,2,1}?
Option A:	{1,4,11,9,8,3}
Option B:	{1,4,9,11,8,3}
Option C:	{1,4,9,11,3,8}
Option D:	{1,4,9,3,8,11}
Q12.	What is the sequence y(n) that results from the use of four point DFTs if the impulse response is h(n)={1,2,3} and the input sequence x(n)={1,2,2,1}?
Option A:	{9,9,7,11}
Option B:	{1,4,9,11,8,3}
Option C:	{7,9,7,11}

Option D:	{9,7,9,11}
Q13.	In Overlap save method of long sequence filtering, how many zeros are appended to the impulse response of the FIR filter?
Option A:	L+M
Option B:	L
Option C:	L+1
Option D:	L-1
Q14.	If x(n)=cosω0n and W(ω) is the Fourier transform of the rectangular signal w(n), then what is the Fourier transform of the signal x(n).w(n)?
Option A:	1/2[W(ω-ω0)- W(ω+ω0)]
Option B:	1/2[W(ω-ω0)+ W(ω+ω0)]
Option C:	[W(ω-ω0)+ W(ω+ω0)]
Option D:	[W(ω-ω0)- W(ω+ω0)]
Q15.	DIFFFT algorithm is used to compute
Option A:	H(n)
Option B:	H(K)
Option C:	G(n)
Option D:	G(H)
Q16.	Find DFT of x(n) =(1,2,3,4) using DITFFT
Option A:	(10,-2+j2,-2,-2-j2)
Option B:	(10,-2+j2,-2,2-j2)
Option C:	(10,2+j2,-2,-2-j2)
Option D:	(10,-2+j2,2,-2-j2)
Q17.	Which of the following is the property of Twiddle factor?
Option A:	Time variance
Option B:	Periodicity
Option C:	Causality
Option D:	Linearity
Q18.	Which of the following is the false statement for DIF algorithms?
Option A:	Use $N\log_2 N$ operations
Option B:	Complex multiplication takes place after adder
Option C:	Bit reversal is required
Option D:	Decimated in time domain
Q19.	If L = 4, M = 3, and y1(n) = {-1, 0 , 2, 9,1,-1} and y2(n) = { - 2, 6, -2, -1, -2, -1}, then using overlap Save method what would be the value of y(n) after combining y1(n) and y2(n)?
Option A:	{-1, 0, 2, -2, 6, -2}

Option B:	{-1, 0, 2, 9, -1, 5, -2, -1, -2, -1}
Option C:	{-1, 0, 2, 9, -2, 6, -2, -1}
Option D:	{2, 9, 1, -1, -2, -1, -2, -1}
Q20.	If L = 4, M = 3, and y1(n) = {-1, 0 , 2, 9,1,-1} and y2(n) = { - 2, 6, -2, -1, -2, -1}, then using overlap add method what would be the value of y(n) after addition of y1(n) and y2(n)?
Option A:	{-3, 6,0,8,-1,-2}
Option B:	{-1, 0, 2, 7, 7, -3, -2, -1, -2, -1}
Option C:	{-1, 0, 2, 9, -1, 5, -2, -1, -2, -1}
Option D:	{-1, 0, 2, 9, 1, -3, 6, -2, -1, -2, -1}
Q21.	Overlap add method and overlap save method are used for calculating which convolution? Is it for long or short sequences?
Option A:	Linear Convolution, long
Option B:	Linear convolution, short
Option C:	correlation, long
Option D:	correlation, short
Q22.	In overlap add method how many data points of each output blocks are overlapped during final addition of results?
Option A:	L-1 (L is size of sub sequence of x(n))
Option B:	N-1 (N is size of x(n)
Option C:	M-1 (M is size of h(n))
Option D:	L-M-1
Q23.	How many clock cycles are required for executing an instruction in DSP processor?
Option A:	1 clock cycle
Option B:	2 clock cycles
Option C:	3 clock cycles
Option D:	4 clock cycles
Q24.	Who takes care of the program control flow in DSP processor?
Option A:	Program sequencer

Option B:	Instruction register
Option C:	Program sequencer and Instruction register
Option D:	Program counter
Q25.	How many major blocks are present in DSP processor Architecture?
Option A:	8
Option B:	20
Option C:	9
Option D:	7