University of Mumbai
Examination 2020 under cluster 4 (PCE)

Program: BE Computer Engineering
Curriculum Scheme: Rev 2016
Examination: Final Year Semester VII
Course Code: CSC701 and Course Name: Digital Signal and Image Processing
Time: 1 hour Max. Marks: 50

Q NO	QUESTION	OPTIONS				Correct Answer
		A	B	C	D	
1	Time shifting of discrete time signal means	y[n] = x[-n-k]	y[n] = x[n-k]	y[n] = -x[n-k]	y[n] = x[n+k]	**B**
2	Correlation between two signals x(n) and y(n) is called	Cross Correlation	Both cross and Auto Correlation	Auto Correlation	Neither cross nor auto Correlation	**A**
3	Determine the linear convolution of x(n)={3,7} and h(n)={2,5,4}	y(n)={6,29,47, 25}	y(n)={6,29,47, 28}	y(n)={6,25,47, 28}	y(n)={6,29,37, 28}	**B**
4	The system described by the input-output equation y(n)=4x(n) is a	Dynamic system	Static system	Both static and Dynamic system	Identical system	**B**
5	The interface between an analog signal and a digital processor is	A/D converter	D/A converter	Modulator	Demodulator	**A**
6	The 2-point DFT of x(n)={1,1} is	{2,0}	{1,0}	{2,2}	{0,1}	**A**
7	In 4-point DFT,Value of twiddle factor repeats after	kn=3	kn=4	kn=2	kn=5	**A**
8	Periodicity property for DFT statement is	x(n)=x(n+N)	x(n)=x(N)	x(n)=x(n-N)	x(n)=x(-n+N)	**A**

9	If X1(k) and X2(k) are the N-point DFTs of X1(n) and x2(n) respectively, then what is the N-point DFT of x(n)=ax1(n)+bx2(n)?	X1(ak)+X2(bk)	aX1(k)+bX2(k)	eakX1(k)+ebk X2(k)	aX1(k)-bX2(k)	**B**
10	For radix -2 FFT , N must be a power of	N	4	2	N/2	**C**
11	In DIT-FFT	Input is decimented in time	Output is decimented in time	Input is decimented in frequency	Output is decimented in frequency	**A**
12	Using radix 2, what is IFFT of X(k)={3, 1}	{4, -2}	{2, 1}	{4, 2}	{1, 2}	**B**
13	Fast Fourier Transform (FFT) algorithm uses	Dynamic approach	Divide & conquer approach	Brute force approach	Greedy approach	**B**
14	Two pixels p and q are said to be --------- if i)q is in N4(p) or ii) q is in ND(p) and the set N4(p) ∩ N4(q) has no pixels	4-connected	8-connected	M-connected	diagonally connected	**C**
15	_____ is the total amount of energy that flows from light source.	Radiance	Darkness	Brightness	Luminance	**A**
16	1024 x 1024 image has resolution of ----	1048576	1148576	1248576	1348576	**A**
17	The range of values spanned by the gray scale is called	Dynamic range	Band range	Peak range	Resolution range	**A**
18	In Power law transform defined by transfer function , S = C (γ)γ where C = constant, when γ > 1 then,	wide range of dark pixel intensities transformed into narrow range	narrow range of dark pixel intensities transformed into wide range	Identity transformation	Gyama correction	**A**
19	The missing component on circuit board can be detected by compairing it's image with image of a properly assembled circuit board. This is application of -	Contrast strtching	Image addition	Image subtraction	Histogram equallisation	**C**

20	The function of _____ is to remove unwanted noise from the image while preserving all the details of original image.	Gray level slicing	Image histogram	Image segmentation	Smoothing filters	**D**
21	In _____ filtering , the input pixel is replaced by median of pixels contained in a window around that pixel.	Averaging	Median	High pass	Low pass	**B**
22	Image segmentation is also based on	morphology	set theory	extraction	Recognition	**A**
23	Image whose principle features are edges is called	orthogonal	isolated	edge map	edge normal	**C**
24	Vertical lines are angles at	0	45	90	135	**C**
25	Mask's response to zero means	sum to zero	subtraction to zero	division to zero	multiplication to zero	**A**