These are sample MCQs to indicate pattern, may or may not appear in examination

University of Mumbai

Online Examination 2020

Program: BE Computer Engineering	
Curriculum Scheme: Revised 2016	
Examination: Final Year Semester VII	
Course Code: CSC 701 and Course Name: Digital Signal & Image Processing	
Time: 1hour	Max. Marks: 50
Note to the students:- All the Questions are compulsory and carry equal marks .	
Q.1	For 6 bits per pixel representation what will be highest gray level value possible in the image?
Option A:	64
Option B:	63
Option C:	127
Option D:	255
Q.2	Which of the following are four Neighbours of Pixel with coordinates (x,y) ?
Option A:	(x,y),(x+1,y),(x-1,y-1),(x,y-1)
Option B:	(x+1,y),(x+1,y+1),(x-1,y-1),(x,y-1)
Option C:	(x+1,y),(x-1,y),(x,y+1),(x,y-1)
Option D:	(x-1,y),(x+1,y),(x,y),(x,y-1)
Q.3	Which of the following are eight Neighbours of Pixel with coordinates (4,4) ?
Option A:	(3,5),(4,5),(5,5),(3,4),(5,4),(3,3),(4,3),(5,3)
Option B:	(3,5),(4,5),(5,5),(3,4),(6,4),(3,3),(4,3),(5,3)
Option C:	(2,5),(4,5),(5,5),(3,4),(5,4),(3,3),(4,3),(5,2)
Option D:	(3,5),(4,5),(6,5),(3,4),(5,4),(3,3),(4,3),(5,3)
Q.4	For an image of Size 10x10 pixels and 6 bits are used to represent each pixel then calculate how much storage in bits required to store this image .
Option A:	100 bits
Option B:	500 bits
Option C:	106 bits
Option D:	600 bits
Q.5	if X(k)={15,-3+6j,-5,-3-6j} and x(n) is inverse of X(k), then find x(0).
Option A:	15
Option B:	-5

Option C:	1
Option D:	4
Q.6	Calculate Number of Real Additions required to be done in calculation of 5- point DFT Calculation?
Option A:	25
Option B:	45
Option C:	65
Option D:	90
Q.7	The first five points of 8-point DFT of real valued sequence are {30,-7.2+5j,-2-4j,1.2-5j,2}. Determine remaining three points i.e. X(5),X(6) and X(7).
Option A:	{1.2+5j,-2+4j,-7.2-5j}
Option B:	{1.2+5j,-2+4j,30}
Option C:	{1.2+5j,-2+4j,-7.2+5j}
Option D:	{1.2+5j,-2-4j,30}
Q.8	Calculate Number of Real Multiplications required to be done in calculation of 8- Point DFT?
Option A:	64
Option B:	128
Option C:	256
Option D:	512
Q.9	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) and F1(k) and F2(k) are the N/2 point DFTs of f1(k) and f2(k) respectively, then what is the N/2 point DFT X(k) of x(n)?
Option A:	F1(k)+F2(k)
Option B:	F1(k)-WNk F2(k)
Option C:	F1(k)+WNk F2(k)
Option D:	F1(k)-F2(k)
Q.10	How many complex multiplications are required to compute X(k)?
Option A:	N(N+1)
Option B:	N(N-1)/2
Option C:	N2/2
Option D:	N(N+1)/2
Q.11	Which mathematical notation specifies the condition of periodicity for a continuous time signal ?
Option A:	x(t) = x(t +T0)
Option B:	x(n) = x(n+ N)
Option C:	x(t) = e-αt
Option D:	x(t) = eαt

Q.12	A system is said to be shift invariant only if_____
Option A:	a shift in the input signal also results in the corresponding shift in the output
Option B:	a shift in the input signal does not exhibit the corresponding shift in the output
Option C:	a shifting level does not vary in an input as well as output
Option D:	a shifting at input does not affect the output
Q.13	Under which conditions does an initially relaxed system become unstable ?
Option A:	only if bounded input generates unbounded output
Option B:	only if bounded input generates bounded output
Option C:	only if unbounded input generates unbounded output
Option D:	only if unbounded input generates bounded output
Q.14	Which among the following operations is/are not involved /associated with the computation process of linear convolution?
Option A:	Folding Operation
Option B:	Shifting Operation
Option C:	Multiplication Operation
Option D:	Integration Operation
Q.15	Discrete-time signals are _____
Option A:	Continuous in amplitude and continuous in time
Option B:	Continuous in amplitude and discrete in time
Option C:	Discrete in amplitude and discrete in time
Option D:	Discrete in amplitude and continuous in time
Q.16	Determine the discrete-time signal: x(n)=1 for n≥0 and x(n)=0 for n<0
Option A:	Unit ramp sequence
Option B:	Unit impulse sequence
Option C:	Exponential sequence
Option D:	Unit step sequence
Q.17	Determine the Nyquist rate of the signal x(t) = 1 + cos 2000πt + sin 4000πt.
Option A:	2000Hz
Option B:	4000Hz
Option C:	1Hz
Option D:	8000Hz
Q.18	Decimation is a process in which sampling rate is
Option A:	Reduced
Option B:	Unpredictable
Option C:	Stable
Option D:	Enhanced

Q.19	Double line effect is produced by
Option A:	First derivative
Option B:	Second derivative
Option C:	Third derivative
Option D:	Both a and b
Q.20	If R is the entire region of the image then union of all segmented parts should be equal to
Option A:	R
Option B:	R'
Option C:	Ri
Option D:	Rn
Q.21	Dark characteristics in an image are better solved using _____
Option A:	Laplacian Transform
Option B:	Gaussian Transform
Option C:	Histogram Specification
Option D:	Power-law Transformation
Q.22	Which of the following fails to work on dark intensity distributions?
Option A:	Laplacian Transform
Option B:	Gaussian Transform
Option C:	Histogram Specification
Option D:	Power-law Transformation
Q.23	An alternate approach to median filtering is
Option A:	Use a mask
Option B:	Gaussian filter
Option C:	Sharpening
Option D:	Laplacian filter
Q.24	Final step of enhancement lies in _____ of the sharpened image
Option A:	Increase range of contrast
Option B:	Increase range of brightness
Option C:	Increase dynamic range
Option D:	Decrease dynamic range
Q.25	Output image after thresholding is
Option A:	Semi-color
Option B:	Grey
Option C:	Black & White
Option D:	Color