

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

**University of Mumbai  
Online Examination 2020**

Program: BE Electronics and Telecommunication Engineering

Curriculum Scheme: Revised 2012

Examination: Final Year Semester VII

Course Code: ETC701 and Course Name: Image and Video 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 spatial filter is used to remove salt and pepper noise?
Option A:	Sharpening filter
Option B:	Averaging filter
Option C:	Median filter
Option D:	High boost filter
Q2.	Which of the following equation represents discrete Laplacian ?
Option A:	$f(x+1) + f(x-1) - 2 f(x)$
Option B:	$f(x+1) - f(x-1) + 2 f(x)$
Option C:	$f(x+1, y) + f(x-1, y) + f(x, y+1) + f(x, y-1) - 4 f(x,y)$
Option D:	$f(x+1, y+1) + f(x-1, y-1) + f(x, y+1) + f(x, y-1) - 4 f(x,y)$
Q3.	The direction of an edge at an arbitrary point (x,y) is ----- to that of direction of gradient vector at that point.
Option A:	same
Option B:	orthogonal
Option C:	horizontal
Option D:	vertical
Q4.	The property of Sharpening OR High pass filter (mask) is:
Option A:	All weights (values) of mask are '1'
Option B:	All weights are divided by average value
Option C:	Sum of all weights is always 'zero'
Option D:	More weight to center element of mask
Q5.	DCT transformation matrix is always:
Option A:	Complex valued
Option B:	Aperiodic

Option C:	Periodic
Option D:	Real valued
Q6.	Twiddle factor (or phase factor) of DFT satisfies following properties:
Option A:	Periodicity and Symmetry
Option B:	Periodicity only
Option C:	Symmetry only
Option D:	Aperiodic and asymmetric
Q7.	Multiplication of two DFTs results in ----- in time domain.
Option A:	Linear convolution
Option B:	Circular convolution
Option C:	Circular time shifting
Option D:	Circular frequency shift
Q8.	Compute the storage capacity required for an image with size 1024x768 and 256 gray levels
Option A:	6291456 bits
Option B:	786432 bits
Option C:	196608 bits
Option D:	262144 bits
Q9.	For pixels $p(x,y)$ & $q(s,t)$ . City block distance is computed as:
Option A:	$D(p,q) =  x-s  +  y-t $
Option B:	$D(p,q) = [(x-s)^2 + (y-t)^2]^{0.5}$
Option C:	$D(p,q) = \max( x-s ,  y-t )$
Option D:	$D(p,q) = \min( x-s ,  y-t )$
Q10.	What is the aspect ratio for films in movie?
Option A:	between 4:3 and 16:9
Option B:	1.33:1
Option C:	1.78:1
Option D:	between 1.66:1 and 2.39:1
Q11.	Bit rate (bits per second) of digital video depend on:
Option A:	Number of pixels per frame
Option B:	Number of pixels per frame and number of frames per second
Option C:	Number of number of bits per pixels and number of frames per second
Option D:	Number of bits per pixels, Number of pixels per frame and number of frames per second
Q12.	In progressive scanning:
Option A:	Entire field is scanned in sequential manner once
Option B:	Entire frame is scanned in sequential manner once
Option C:	Entire frame is scanned twice
Option D:	Entire field is scanned twice

Q13.	In digital video , which frame is coded independently?
Option A:	Intra-frame (I)
Option B:	Predicted frame (P)
Option C:	Bidirectional frame (B)
Option D:	All frames
Q14.	The popularity of motion compensation and estimation based on the model of translation block originates from:
Option A:	High accuracy
Option B:	low overload requirement to represent the motion field in terms of motion vector per block
Option C:	Minimum computation time
Option D:	High coding efficiency
Q15.	Block matching algorithm is based on principle of :
Option A:	finding the best matched successive frame
Option B:	finding similarities in a single frame
Option C:	searching for the block of same size in next successive frame and computing block displacement
Option D:	searching frame with minimum variation
Q16.	Phase correlation method is relatively insensitive to :
Option A:	changes in illumination
Option B:	changes in relative displacement
Option C:	changes in phase spectrum
Option D:	changes in block motion
Q17.	The basic purpose of chroma- subsampling is to:
Option A:	to reduce color information in video frames
Option B:	to reduce the dimension of the input video and thus the number of pixels to be coded prior to encoding process
Option C:	to improve chrominance information in video frame
Option D:	to remove noise from video frames
Q18.	Interframe coding is useful in:
Option A:	removing temporal redundancy between successive frames
Option B:	removing the spatial redundancy within a frame
Option C:	encoding successive frames
Option D:	encoding independent frame
Q19.	Motion estimation describes the process of :
Option A:	predicting and reconstructing a frame using a given reference frame and a set of motion parameters
Option B:	compensating the motion between successive video frames
Option C:	determining the motion between two or more frames in an image sequence

Option D:	reducing motion between frames
Q20.	It is difficult to segment:
Option A:	Poorly illuminated images
Option B:	Bright images
Option C:	Sharp images
Option D:	Good contrast images
Q21.	Which of the following mask have better noise suppression?
Option A:	Roberts
Option B:	Prewitt
Option C:	Sobel
Option D:	Laplacian
Q22.	Process that expands the range of intensity levels in an image over the full intensity range of display device is:
Option A:	Histogram equalization
Option B:	Histogram matching
Option C:	Intensity level stretching
Option D:	Contrast stretching
Q23.	For perfect inverse mapping, the transformation function $T(r)$ must be:
Option A:	Monotonically increasing
Option B:	Strictly monotonically increasing
Option C:	Monotonically decreasing
Option D:	Strictly monotonically decreasing
Q24.	Which filtering method is to be used to smooth out broken characters of text in an image?
Option A:	Averaging filter
Option B:	Sharpening filter
Option C:	Gradient filter
Option D:	Order statistic filter
Q25.	The process of restoring an image by using a degradation function that has been estimated in some way is called:
Option A:	Linear convolution
Option B:	Circular convolution
Option C:	Blind deconvolution
Option D:	Blind convolution