University of Mumbai

Examination 2020 under cluster 4 (PCE)

Program: BE Electronics and Telecommunications Engineering
Curriculum Scheme: Rev.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.	The common example of 2D interpolation is image
Option A:	Enhancement
Option B:	Sharpening
Option C:	Blurring
Option D:	Resizing
Q2.	The 4-point discrete Fourier Transform (DFT) of a discrete time sequence {1, 0, 2, 3} is
Option A:	$[6, -2 + 2j, 2, -2 - 2j]$
Option B:	$[6, 2 + 2j, 6, 2 - 2j]$
Option C:	$[6, 1 - 3j, 2, 1 + 3j]$
Option D:	$[6, -1 + 3j, 0, -1 - 3j]$
Q3.	KL transform is also known as------
Option A:	Hoteling Transform
Option B:	Walsh Transform
Option C:	Hadamard Transform
Option D:	Wavelet Transform
Q4.	The Discrete Wavelet Transform is obtained by filtering the signal through a series of -------at different scales
Option A:	Analog filters
Option B:	Digital Filters
Option C:	Active filters
Option D:	Passive filters
Q5.	In Homomorphic filtering which of the following operations is used to convert input image to discrete Fourier transformed function?
Option A:	Logarithmic operation
Option B:	Exponential operation
Option C:	Negative transformation
Option D:	Linear transformation
Q6.	In general, which of the following assures of no ringing in the output?
Option A:	Gaussian Lowpass Filter
Option B:	Ideal Lowpass Filter
Option C:	Butterworth Lowpass Filter
Option D:	High pass filter

Q7.	Log transformation is given by the formula___
Option A:	s=clog(r)
Option B:	s=clog(1+ r)
Option C:	s=clog(2+r)
Option D:	s=log(1+r)
Q8.	In power transformation values are dependent on value of ___
Option A:	X- rays
Option B:	Alpha
Option C:	Beta
Option D:	Gamma
Q9.	Specific bit contribution in the image highlighting is the basic idea of _____
Option A:	Contrast stretching
Option B:	Bit –plane slicing
Option C:	Bit –plane slicing
Option D:	Gray-level slicing
Q10.	Which of the following is an example of similarity based approach in image segmentation?
Option A:	Edge based segmentation
Option B:	Region based segmentation
Option C:	Boundary based segmentation
Option D:	Point detection
Q11.	Which of the following second order operator is most robust to noise in edge filtering?
Option A:	Sobel operator
Option B:	Laplacian operator
Option C:	Prewitt operator
Option D:	Laplacian of Gaussian operator
Q12.	Gradient vector is also called as
Option A:	Edge based segmentation
Option B:	Edge segment
Option C:	Edge pixel
Option D:	Edge normal
Q13.	Image opening is defined as
Option A:	Dilation of the Dilation of a set A by a structuring element B
Option B:	Erosion of the Dialtion of a set A by a structuring element B
Option C:	Dilation of the erosion of a set A by a structuring element B
Option D:	Erosion of the erosion of a set A by a structuring element B
Q14.	The closing of a set (binary image) *A* by a structuring element *B* is the
Option A:	Dilation of the Dilation of a set

Option B:	Erosion of the dilation of that set,
Option C:	Erosion of the erosion of a set
Option D:	Dilation of the erosion of a set
Q15.	In a filter, all the frequencies inside a circle of radius D0 are not attenuated while all frequencies outside circle are completely attenuated. The D0 is the specified nonnegative distance from origin of the Fourier transform. Which of the following filter(s) characterizes the same?
Option A:	Butterworth filter
Option B:	Ideal filter
Option C:	Gaussian filter
Option D:	Practical filter
Q16.	Which of the following lowpass filters is/are covers the range of very sharp filter function?
Option A:	Gaussian lowpass filter
Option B:	Butterworth lowpass filter
Option C:	Ideal lowpass filters
Option D:	Ideal highpass filters
Q17.	Smoothing in frequency domain is achieved by attenuating which of the following component in the transform of a given image?
Option A:	Attenuating a range of high-frequency components
Option B:	Attenuating a range of low-frequency components
Option C:	Attenuating both high and low-frequency components
Option D:	Without attenuating any components it can be achieved
Q18.	Order statisitics filters are filters whose responses are based on
Option A:	Additive noise
Option B:	Probability density function
Option C:	Pixels
Option D:	Ranking
Q19.	Finite difference filters in image processing are very susceptible to noise. To cope up with this, which of the following methods can you use so that there would be minimal distortions by noise?
Option A:	Downsample the image
Option B:	Convert the image to grayscale from RGB
Option C:	Smooth the image
Option D:	Convert the image to binary from RGB
Q20.	Suppose we have a grayscale image, with most of the values of pixels being same. What can we use to compress the size of image?
Option A:	Encode the sequence of values of pixels
Option B:	Encode the pixels with same values in a dictionary
Option C:	No compression can be done
Option D:	Same value means it’s an uniform noise so noisy image

Q21.	Alaising effect can be overcome by making-
Option A:	Sampling frequency greater than twice the maximum frequency
Option B:	Sampling frequency equal to maximum frequency
Option C:	Sampling frequency less than maximum frequency
Option D:	Alaising effect cannot be overcome
Q22.	Luma Channel has bit rate of-
Option A:	108 Mbps
Option B:	180 Mbps
Option C:	188 Mbps
Option D:	100 Mbps
Q23.	The ratio of width and height of the picture frame is called?
Option A:	Scanning
Option B:	Fly back time
Option C:	Aspect ratio
Option D:	Frame rate
Q24.	According to CCIR standard, in India we use how many frames per second
Option A:	30
Option B:	50
Option C:	25
Option D:	35
Q25.	This doesn't qualify as a Region of support for motion estimation
Option A:	Global
Option B:	Regional
Option C:	Pixel
Option D:	Block

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Question	Correct Option (Enter either 'A' or 'B' or 'C' or 'D')
Q1.	D
Q2.	D
Q3.	A
Q4	B
Q5	A
Q6	A
Q7	B
Q8.	D
Q9.	B
Q10.	B
Q11.	D
Q12.	A
Q13.	C
Q14.	B
Q15.	B
Q16.	C
Q17.	A
Q18.	D
Q19.	C
Q20.	B
Q21.	A
Q22.	A
Q23.	C
Q24.	C
Q25.	B