

**University of Mumbai**  
**Examination 2020 under cluster 4 (PCE)**

Program: BE Information Technology

Curriculum Scheme: Rev2012

Examination: Final Year Semester VII

Course Code: **ITC7051** and Course Name: **Elective I: Image 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.	In image processing, the single sensor that is mostly used is
Option A:	DMOS
Option B:	CMOS
Option C:	Photodiode
Option D:	Microdensitometer
Q2.	Digitizing the coordinate values of a continuous signal is called
Option A:	Compression
Option B:	Sampling
Option C:	Quantization
Option D:	Segmentation
Q3.	In an image acquisition, using a sensing array the sampling is done based on
Option A:	The number of sensors in the sensing array defines the limits of sampling in both directions
Option B:	The number of actual increments at which we activate the sensor to collect data
Option C:	The number of mechanical increments at which we activate the sensor to collect data
Option D:	The number of sensors in the strip establishes the sampling limitations in one image direction and Mechanical motion in the other direction
Q4.	Spatial domain refers to
Option A:	Direct changing of image pixel
Option B:	Manipulations on whole image
Option C:	Modifications on Fourier transform of an image
Option D:	Contrast

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Q5.	Power Log Transformation is used for
Option A:	Printer
Option B:	Pen
Option C:	Cathode ray tube
Option D:	Scanner
Q6.	Select the best filter to remove salt and pepper noise
Option A:	min filter
Option B:	median filter
Option C:	max filter
Option D:	box filter
Q7.	Which is a simple image enhancement technique that attempts to improve the contrast in an image by widening the range of intensity values it contains to span a desired range of values.
Option A:	Contouring stretching
Option B:	Contrast stretching
Option C:	Contrast changing
Option D:	Point stretching
Q8.	The 2D Discrete Fourier Transform and its inverse are
Option A:	infinitely nonlinear
Option B:	infinitely aperiodic
Option C:	infinitely linear
Option D:	infinitely periodic
Q9.	Fourier series is
Option A:	The sum of cosines and sines coefficient multiplied
Option B:	The sum of cosines and tan coefficient multiplied

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Option C:	The difference of tan and sines coefficient multiplied
Option D:	The sum of cosines and sines coefficient division
Q10.	Choose the correct statement regarding the number of computations required for computing an N-point DFT
Option A:	$N^2$ complex subtraction and $N(N-1)$ complex multiplications
Option B:	$N^2$ complex multiplications and $N(N-1)$ complex additions
Option C:	$N^2$ complex multiplications and $N(N-1)$ complex division
Option D:	$N^2$ complex additions and $N(N+1)$ complex multiplications
Q11.	With which of the following, is the gradient combined for edge detection
Option A:	area
Option B:	set theory
Option C:	line
Option D:	thresholding
Q12.	Select among the following which is not a region based segmentation technique
Option A:	Region Growing
Option B:	Split and merge
Option C:	Region Splitting
Option D:	Region mask
Q13.	Which is a powerful technique for finding straight lines, and other parametrized shapes, in images.
Option A:	Hough Transform
Option B:	Histogram equalization
Option C:	Shape identification
Option D:	Line identification
Q14.	Select true statement
Option A:	Chain code is calculated anticlockwise
Option B:	Chain code is unique representation of a image

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Option C:	Shape number is a normalized code
Option D:	Order is calculated clockwise
Q15.	The first difference code of chain code 0000655332 is
Option A:	5605065
Option B:	5606076
Option C:	5605065
Option D:	6706076
Q16.	Select the incorrect statement
Option A:	Perimeter as Boundary descriptors is defined as the length of the chain code
Option B:	Diameter as Boundary descriptors is defined as $\max_{i,j}(D(p_i, p_j))$
Option C:	Euler formula is a Topological descriptor
Option D:	Curvature is the ratio of major axis and minor axis
Q17.	Which is not a lossless compression techniques
Option A:	Run Length Encoding
Option B:	Huffman Coding
Option C:	Predictive Coding
Option D:	Improved Gray-Scale
Q18.	Select false statement related to LZW coding
Option A:	It is an error free compression technique
Option B:	It remove Inter-pixel redundancy
Option C:	It requires no priori knowledge of probability distribution of pixel
Option D:	Assigns variable length code words to fixed length sequences
Q19.	Which is not a separable filter band
Option A:	Horizontal low-pass filter (HLP)
Option B:	Horizontal high-pass filter (HHP)
Option C:	Vertical low-pass filter (VLP)
Option D:	Vertical high-boost filter (VBP)
Q20.	Basic morphological operation is
Option A:	hit-or-miss
Option B:	pruning

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Option C:	opening
Option D:	erosion
Q21.	Which is not associated with morphological operations
Option A:	Cutting
Option B:	Convex hull
Option C:	Skeletonization
Option D:	Boundary Extraction
Q22.	Elimination of a small holes in a binary image is done by
Option A:	Erosion
Option B:	Dilation
Option C:	Opening
Option D:	Closing
Q23.	Bit plane slicing generally can not be used for
Option A:	Steganography
Option B:	Enhancement
Option C:	Compression
Option D:	Transforms
Q24.	Which of the following is not an evaluation parameter in Content based image retrieval
Option A:	Precision
Option B:	Recall
Option C:	Entropy
Option D:	F-measure
Q25.	Morphological operations can not be applied to
Option A:	Binary images
Option B:	Gray Scale Images
Option C:	Image Enhancement
Option D:	Image compression

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Question	Correct Option (Enter either 'A' or 'B' or 'C' or 'D')
Q1.	C
Q2.	B
Q3.	A
Q4	A
Q5	C
Q6	B
Q7	B
Q8.	D
Q9.	A
Q10.	B
Q11.	D
Q12.	D
Q13.	A
Q14.	C
Q15.	D
Q16.	D
Q17.	D

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Q18.	D
Q19.	D
Q20.	D
Q21.	A
Q22.	D
Q23.	D
Q24.	C
Q25.	D