University of Mumbai Examination First half 2022

Program: MCA

Curriculum Scheme: MCA (Sem-II) (R-2020-21) (2 Year Course)

Examination: M.C.A Semester II

Course Code: MCAE241 and Course Name: Elective 1 Image Processing

Time: 2 hours 30 minutes Max. Marks: 80

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Q1.	**Choose the correct option for following questions. All the Questions are compulsory and carry equal marks (2 Marks each)**
1.	_____of a digital image with gray levels in the range [0, L-1] is a discrete function h(rk)=nk. rk-kth gray level nk-number of pixels in the image having gray level rk
Option A:	Image subtraction
Option B:	Spatial filtering
Option C:	Image averaging
Option D:	Histogram
2.	Which of the following is not a property of Haar transform.
Option A:	real and orthogonal
Option B:	The basic vectors matrix is not sequensly ordered
Option C:	very fast transform
Option D:	very poor energy compaction for images 4
3.	_____ is a color attribute that describes a pure color where saturation gives a measure of the degree to which a pure color is diluted by white light.
Option A:	Contrast
Option B:	Hue
Option C:	Saturation
Option D:	BRIGHTNESS
4.	Which of the following is not property of 2D fourier transform
Option A:	Separability
Option B:	Translation
Option C:	Restoration
Option D:	Sampling
5.	The difference between 2 images f(x,y) and h(x,y) expressed using

	image subtraction as
Option A:	g(x,y)=f(x,y)-h(x,y)
Option B:	g(x,y)=f(x,y)+h(x,y)
Option C:	g(x,y)= h(x,y)-f(x,y)
Option D:	g(x,y)= -f(x,y)*h(x,y)
6.	With dilation process image get
Option A:	Shrink
Option B:	Thick
Option C:	Sharp
Option D:	Scale
7.	Exponential and Uniform are which type of model
Option A:	Noise model
Option B:	Image restoration Model
Option C:	Image enhancement Model
Option D:	Image segmentation Model
8.	Erosion followed by Dilation is called
Option A:	Closing
Option B:	Opening
Option C:	Burring
Option D:	Translation
9.	Which of the following is the first and foremost step in Image Processing?
Option A:	Image acquisition
Option B:	Segmentation
Option C:	Image enhancement
Option D:	Image restoration
10.	_____-is a smallest addressable unit
Option A:	Pixel
Option B:	Point
Option C:	Dot
Option D:	Line

Q2 (20 Marks)	**Solve any Two Questions out of Three 10 marks each**
A	Explain Image Restoration Techniques a. Inverse Filtering b. Average Filtering c. Median Filtering

<table>
<tr><td>B</td><td>Explain different Morphological Operations?</td></tr>
<tr><td>C</td><td>Expalin RGB, CMY color model ?</td></tr>
<tr><td>Q3
(20 Marks)</td><td>Solve any Two Questions out of Three 10 marks each</td></tr>
<tr><td>A</td><td>Explain different applications of Image Processing?</td></tr>
<tr><td>B</td><td>List and explain Noise Models?</td></tr>
<tr><td>C</td><td>State and explain properties of Discrete Fourier Transform</td></tr>
<tr><td>Q4
(20 Marks)</td><td>Solve any Two Questions out of Three 10 marks each</td></tr>
<tr><td>A</td><td>List and explain types of image compression techniques?</td></tr>
<tr><td>B</td><td>Explain Prewit Filter, Sobel Filter ?</td></tr>
<tr><td>C</td><td>Equalized the given Histogram

<table>
<tr><td>Gray Level</td><td>0</td><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td></tr>
<tr><td>Number of Pixel</td><td>790</td><td>1023</td><td>850</td><td>656</td><td>329</td><td>245</td><td>122</td><td>81</td></tr>
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