

Solution

Q1																				
a	Boundary extraction and the formula.	3mk, 2mk																		
b	Run Length Encoding in loss less compression and example	3mk, 2mk																		
c	Basic elements of an image processing system	5mk																		
d	Compass operator and example	3mk, 2mk																		
Q2																				
a	Given histogram (a) and (b), modify histogram (a) as given by histogram (b). Histogram (a)																			
	<table border="1"> <tbody> <tr> <td>Grey 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>No. of Pixels</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> </tbody> </table>	Grey Level	0	1	2	3	4	5	6	7	No. of Pixels	790	1023	850	656	329	245	122	81	
Grey Level	0	1	2	3	4	5	6	7												
No. of Pixels	790	1023	850	656	329	245	122	81												
	Histogram (b)																			
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	Equalize histogram (a) & (b) Inverse Transform Final result and resultant histogram	6mk, 2mk, 2mk																		
b	Discussion of the following image enhancement technique and give their application (i) Log Transformation (ii) Zooming.	5mk 5mk																		
Q3																				
a	Derivation of 8x8 matrix for Walsh transform. Walsh basis function for N=4	6mk, 4mk																		
b	Prove and explanation of the following properties of Fourier transform (i) Translation Property (ii) Periodicity and Conjugate Symmetry Property	5mk, 5mk																		
Q4																				
a	Huffman code for the following stream data {a,a,a,a,a,a,a,b,b,b,c,c,c,c,c,d,d,d,d,d,d,d,d,e,e,e,e,f,f} Steps Tree Diagram Huffman Code	5mk 2mk, 3mk 6mk, 4mk																		
b	Explanation of Hough transform and Example of how it is used to detect Boundary																			
Q5																				
a	Hadamard transform matrix H(4). Check if H (4) is orthogonal.	3mk 3mk 4mk																		
b	Computation of the Hadamard transform of the data sequence {1, 2, 0, 3}' Explanation of the following distance with suitable example (i) Euclidean Distance (ii) City block Distance (iii) Chess board Distance (iv) D-adjacency Distance	2.5mk, 2.5mk, 2.5mk, 2.5mk																		
Q6																				
a	Dilation and Erosion Operation	2.5mk, 2.5mk																		
b	Explanation on IGS Coding and steps involved	2.5mk, 2.5mk																		
c	Image Formats & Image Types	2.5mk, 2.5mk																		
d	Explanation of Signatures and examples	3mk, 2mk																		
e	Explanation of Image Zooming by Interpolation and its advantages	3mk, 2mk																		