Sardar Patel Institute of Technology

Bhavan's Campus, Munshi Nagar, Andheri (West), Mumbai-400058, India

(Autonomous College Affiliated to University of Mumbai)

End Semester Examination

Max. Marks: 60 Duration: 2 Hrs.

Class: BE Semester: VII

Branch: IT

Name of the Course: Digital Image Processing

Instruction:

(1) All questions are compulsory

(2) Draw neat diagrams

(3) Assume suitable data if necessary

Q. No.		Max. Marks	CO
1 a)	Explain the effects of reducing quantization and sampling.	5	1
1 b)	If all the pixels in an image are shuffled, will there be any change in the histogram? Justify	5	1
1 c)	Median Filter is used to remove Salt and Pepper noise. Justify OR Perform histogram equalization for the given 3 bit Image: 4 4 4 4 4 3 4 5 4 3 3 5 5 5 3 3 4 5 4 3 4 4 4 4 4	5	1
2 a)	Explain the different types of Redundancies? List the compression algorithms based on the types of redundancies.	7	3
2 b)	Explain the significance of Opening and Closing in Morphological Image Processing with an example.	8	1

<table>
<tr><td>3 a)</td><td>Generate Walsh Transform for N=4, Compute Walsh Transform of the given Image

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<tr><td>3 b)</td><td>Compare Local and global Thresholding.</td><td>7</td><td>1</td></tr>
<tr><td>4 a)</td><td>Derive Huffman code for encoding gray levels in the Image

<table><tr><td>60</td><td>60</td><td>60</td><td>40</td></tr><tr><td>40</td><td>60</td><td>60</td><td>60</td></tr><tr><td>60</td><td>40</td><td>40</td><td>40</td></tr><tr><td>40</td><td>20</td><td>20</td><td>10</td></tr></table></td><td>7</td><td>3</td></tr>
<tr><td>4 b)</td><td>Apply the concept of image processing to describe the application on Biometric Authentication.
OR
Explain the application Content Based Image Retrieval</td><td>8</td><td>4</td></tr>
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