

K. J. Somaiya Institute of Technology, Sion, Mumbai-22
(Autonomous College Affiliated to University of Mumbai)

Nov – Dec 2023		
(B.Tech) Program: AIDS Scheme II		
Examination: TY Semester: V		
Course Code: AIDLC5052 and Course Name: Digital Image and Video Processing		
Date of Exam: 7/12/2023	Duration: 2.5 Hours	Max. Marks: 60

Instructions:													
(1) All questions are compulsory.													
(2) Draw neat diagrams wherever applicable.													
(3) Assume suitable data, if necessary.													
		Max. Marks	CO	BT level									
Q 1	Solve any six questions out of eight:	12											
i)	Explain TIFF file format		1	U									
ii)	Apply bit plane slicing on given image <table border="1" style="margin-left: 20px; border-collapse: collapse;"> <tr> <td>5</td> <td>4</td> <td>0</td> </tr> <tr> <td>4</td> <td>5</td> <td>4</td> </tr> <tr> <td>3</td> <td>2</td> <td>3</td> </tr> </table>	5	4	0	4	5	4	3	2	3		2	AP
5	4	0											
4	5	4											
3	2	3											
iii)	Explain different types of connectivity with neat diagram.		3	AP									
iv)	Explain sharpening filter and high boost filter		2	U									
v)	What is compression ratio and explain with formulae		4	U									
vi)	Describe the different types of frames in digital video		5	U									
vii)	Explain temporal segmentation of video		6	U									
viii)	List out all morphological operations		3										
Q.2	Solve any four questions out of six.	16		U									
i)	Explain the concept of redundancy, entropy and information with respect to compression	4	4	U									
ii)	Explain shot boundary in video and its different types.	6	6	U									

EXTRA AIDS

38+05
= 43

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iii)	<p>Find chain code for given diagram start at point P BOUNDARY</p>	3		U																
iv)	Explain smoothing filter and its application	2		U																
v)	Explain negative of image and thresholding. How they are differ from each other.	2		U																
vi)	Explain variable run length coding.	4		U																
Q.3	Solve any two questions out of three.	16																		
i)	Explain the elements of digital image processing with neat diagram	1	1	U																
ii)	Design the Huffman code for a given string BCAADDDCCACACAC	4	4	AP																
iii)	Explain sampling of video signals.	5	5	U																
Q.4	Solve any two questions out of three.	16																		
i)	Apply Contrast stretching on given image $R2=5, R1=3, S2=6, S1=2$ $f(X,Y)=$ <table border="1" style="margin-left: 40px;"> <tr><td>4</td><td>3</td><td>2</td><td>2</td></tr> <tr><td>3</td><td>1</td><td>2</td><td>4</td></tr> <tr><td>5</td><td>1</td><td>6</td><td>2</td></tr> <tr><td>2</td><td>3</td><td>5</td><td>6</td></tr> </table>	4	3	2	2	3	1	2	4	5	1	6	2	2	3	5	6	2		AP
4	3	2	2																	
3	1	2	4																	
5	1	6	2																	
2	3	5	6																	
ii)	Explain motion based video object detection and tracking	6		U																
iii)	Explain erosion, dilation, opening, closing operations in morphology.	3		U																
