

(3 Hours)

80 Marks

- N.B. 1. Question No.1 is Compulsory
 2. Attempt any THREE questions out of remaining.
 3. Assume suitable data wherever required

Q.1. Answer the following

5*4=20M

- Explain Fidelity Criteria
- Give the Difference between Lossless and Lossy Compression
- Explain Opening and Closing
- Two images can have the same histogram (Justify / Contradict with reason)

Q.2.a Using the Butterfly diagram , compute Hadamard transform for $X(n)=\{ 1,2,3,4,1,2,1,2\}$

10 M

Q.2.b. Find the arithmetic codeword for the message: INDIA

10 M

Q.3.a What are the different types of redundancies in an image? Explain Run Length Encoding with appropriate example. What are its drawbacks?

10 M

Q.3 b. Find the DCT of the following image

10 M

2	4	4	2
4	6	8	3
2	8	10	4
3	8	6	2

Q.4.a Perform Histogram Equalization and Draw new equalized histogram of the following image data

10 M

Grey levels	0	1	2	3	4	5	6	7
No of pixels	790	1023	850	656	329	245	122	81

Q.4.b. Explain Global processing via Graph Theoretic Technique ? Find the optimal path for the following image

10 M

5	6	1
6	7	0
7	1	3

Q.5.a Given

10	44	16
10	14	48
11	10	22

10 M

Find 3 bit IGS coded image and calculate compression Factor , BPP and MSE

Q.5. b Explain Hough Transform with suitable example

10 M

Q.6 Write short notes on

5*4=20M

- 1) 4,8 and M-connectivity
- 2) Vector quantization
- 3) Median Filter
- 4) HSI color model
