



Q. P. Code: 26107

( 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 4\*5=20M  
a. Explain Fidelity Criteria  
b. Explain Morphological operations Erosion and Dilation  
c. Explain Zero memory operations  
d. What is unitary Matrix

- Q.2.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.2.b Find the arithmetic codeword for the message: INDIA 10 M  
Q.3.a Using the Butterfly diagram , compute Hadamard transform for  $X(n)=\{ 1,2,3,4,1,2,1,2\}$  10 M  
Q.3 b. Find the DFT of the following image 10 M

0	1	2	1
1	2	3	2
2	3	4	3
1	2	3	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	400	700	1350	2400	3000	1500	650	0

- Q.4.b. Explain segmentation? Explain the following methods of image segmentation with suitable Example 10 M  
1) Region Growing  
2) Split and Merge

Q.5.a Given

10 M

10	44	16
10	14	48
11	10	22

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) Holomorphic Filtering
- 2) Thinning with Example
- 3) Moments with Example
- 4) Color models

\*\*\*\*\*