B.E. E&TC Sem VIII (Rev) M- 2014
Sub- EL-II I.P.

QP Code : MV-19153

(3 Hours) [Total Marks : 100

22/05/14

Q1. Is compulsory

Solve any 4 from remaining

Q1 A. State and explain significance of convolution property of 2D Fourier Transform (5 marks)

Q1 B. Justify/contradict all image compression techniques are invertible. (5 marks)

Q1 C. Lossy and lossless compression

Q1. D. Why zig-zag scanning preferred in JPEG standard? (5 marks)

Q2. A. What is Hadamard transform? Write a 4 X 4 Hadamard matrix and it's applications. Is H(4) orthogonal ? (10 marks)

Q2 B Explain segmentation based on discontinuity and segmentation based on similarities. (10 marks)

Q3. A. 8 level image is given below (10 marks)

F (x,y) =

4	6	0	3	7
2	1	5	0	3
4	2	7	0	7
1	5	4	6	0
4	7	5	4	1

Prepare histogram of given image
Perform histogram equalization and draw new histogram

Q3 B. Compute 2D DFT of 4 X 4 gray scale image given below and then compute inverse 2D, DFT of transform coefficients. The image f(x, y) is given by (10 marks)

1	1	1	1
1	1	1	1
1	1	1	1
1	1	1	1

[TURN OVER

Q.4 A Apply Slant transform and DCT transform on the given image and compare the result. (10 marks)

F(x,y)=

2	2	2	1
2	4	4	2
2	4	4	2
2	2	2	2

Q4 B Explain Homomorphic filter. (10 marks)

Q5 A Write notes on Hotelling transform. (10 marks)

Q5 B. Calculate entropy and coding redundancy for symbols given in table using Huffman codes. (10 marks)

Symbol	a1	a2	a3	a4	a5	a6	a7	a8
Probability	0.1	0.4	0.05	0.05	0.1	0.2	0.07	0.03

Q6 A Explain image enhancement in frequency domain. (10 marks)

Q6 B Explain JPEG 2000 image compression standard. (10 marks)

Q7 Write notes on (20 marks)

1. Connectivity of pixels
2. Image restoration.
3. Wiener filter.
