Roll No. ....   Total Pages : 2

BT-8/M-20   **38013**

IMAGE PROCESSING

Paper–ECE-420E

Option–(I)

Time Allowed : 3 Hours]   [Maximum Marks : 100

Note : Attempt **five** questions in all, selecting at least **one** question from each Unit. All questions carry equal marks.

UNIT–I

1. (a) With the help of example, explain Toeplitz, Circulate, Orthogonal and Unitary matrices.

    15

    (b) Describe Kronecker product.   5

2. What do you mean by Sampling? How band likited image sampling is different from replication? Describe different types of sampling used for image processing.

    20

UNIT–II

3. Describe 2D DFT. Explain its properties. Illustrate, how discrete cosine and sine transforms are derived from DFT.   20

4. What do you understand by image decomposition? Explain AR and ARMA model in detail.   20

38013/K/924   **P. T. O.**

UNIT–III

5. Define Image enhancement? Describe point, spatial and transform operations for image enhancement.

20

6. What do you mean by Restoration? Explain image restoration techniques in detail.   20

UNIT–IV

7. Comment on spatial features extraction. Describe edge detection and boundary detection techniques in detail.   20

8. What is Image coding? Differentiate between pixel and transform coding theories. Explain each in detail.

20

38013/K/924   **2**