

Code No: R1641042

**R16**

**Set No. 1**

**IV B.Tech I Semester Supplementary Examinations, July/Aug - 2021**

**DIGITAL IMAGE PROCESSING**

**(Common to Electronics & Communication Engineering and Electronics & Instrumentation Engineering and Electronics & Computer Engineering)**

**Time: 3 hours**

**Max. Marks: 70**

*Question paper consists of Part-A and Part-B*

*Answer ALL sub questions from Part-A*

*Answer any FOUR questions from Part-B*

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**PART-A (14 Marks)**

1. a) Explain the Adjacency between pixels. [3]
- b) What is selective filtering? [3]
- c) Write a short note on noise models. [2]
- d) Write note on Golomb coding. [2]
- e) What is the role of noise in image thresholding? [2]
- f) What is noise in color image? [2]

**PART-B (4x14 = 56 Marks)**

2. a) Explain briefly about sensor strips and sensor arrays in image acquisition. [7]
- b) Explain about Walsh transform, and find 1D Walsh basis function for fourth order system. [7]
3. a) Explain briefly about Histogram Equalization and Specification. [7]
- b) Explain the correspondence between filtering in the spatial and frequency domains. [7]
4. a) Discuss briefly about spatial filtering. [7]
- b) What is meant by minimum mean square error filter? Explain it. [7]
5. a) Explain the Huffman coding with example. [7]
- b) Write a brief note on wavelet transform in two dimensions. [7]
6. a) Explain briefly about line detection. [7]
- b) Discuss briefly about morphological smoothing and morphological gradient. [7]
7. a) Explain the color fundamentals of color image processing. [7]
- b) Explain the segmentation in RGB vector space. [7]