

Code No: **R41043**

# R10

# Set No. 1

**IV B.Tech I Semester Supplementary Examinations, October/November - 2017**

# DIGITAL IMAGE PROCESSING

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

**Time: 3 hours****Max. Marks: 75**

**Answer any FIVE Questions**  
**All Questions carry equal marks**

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|---|---|-----|
| 1 | a) What is meant by digital image? How it is represented? Explain.  | [8] |
|   | b) Discuss the walsh transform with example.  | [7] |
| 2 | a) Explain the concept of generating spatial filter masks.  | [8] |
|   | b) What is meant by histogram processing? Explain.  | [7] |
| 3 | a) Define Discrete Fourier Transform of two variables and write its properties.   | [8] |
|   | b) Explain about Image Smoothing using ideal low pass filters.  | [7] |
| 4 | a) What is image restoration? Why it is needed? Explain.  | [8] |
|   | b) Explain the various methods to estimate degradation function.  | [7] |
| 5 | a) Explain different color models.  | [8] |
|   | b) Explain about color image sharpening.  | [7] |
| 6 | a) With necessary equations, explain about scaling function in Multiresolution analysis.  | [8] |
|   | b) With an example, explain Huffman coding.   | [7] |
| 7 | a) Explain the following Terms in morphological image processing.<br>(i) Reflection (ii) Translation (iii) Structuring element (iv) Pruning | [8] |
|   | b) Explain Hit-or-miss transformation.  | [7] |
| 8 | a) Define Laplacian of Gaussian operator and explain its use in edge detection.   | [8] |
|   | b) Discuss the segmentation using morphological watersheds.   | [7] |