Code No: **RT41043**   **R13**   **Set No. 1**

IV B.Tech I Semester Supplementary Examinations, February - 2019
DIGITAL IMAGE PROCESSING
(Common to Electronics and Computer Engineering, Electronics and Communication Engineering and Electronics and Instrumentation 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 THREE questions from Part-B
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PART–A *(22 Marks)*

1. a) Enlist the applications of KL transform.   [4]
    b) Write short notes on log transformation.   [3]
    c) Explain the estimation of degradation function by Experimentation.   [4]
    d) Short note on noise in color images.   [3]
    e) What do you meant by wavelet packet?   [4]
    f) Specify some fundamental conditions of segmentation.   [4]

PART–B *(3x16 = 48 Marks)*

2. a) Discuss the image acquisition using a single sensor, sensor strips and sensor arrays.   [8]
    b) What is Hadamard transform? Explain in detail and Write its properties.   [8]

3. a) Discuss how the various filter masks are generated to sharpen images in spatial filters.   [8]
    b) Illustrate homomorphic filtering approach for image enhancement.   [8]

4. a) With relevant mathematical expressions, explain how a Wiener filter achieves restoration of a given degraded image.   [8]
    b) Explain linear position invariant degradation employed for image restoration. [8]

5. a) Explain pseudo color image processing and pseudo color coding approaches.   [8]
    b) Describe the histogram based processing in color images.   [8]

6. a) Discuss sub-band coding with neat sketch.   [8]
    b) Describe arithmetic coding with an example for compression of image.   [8]

7. a) Discuss segmentation using morphological watersheds.   [8]
    b) Explain Hit-or-Mass transformation technique.   [8]