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

IV B.Tech I Semester Supplementary Examinations, March - 2017
DIGITAL IMAGE PROCESSING
(Common to Electronics & Communication Engineering, 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 THREE questions from Part-B
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PART–A *(22 Marks)*

1. a) Describe Weber ratio.   [4]
    b) Illustrate first and second derivatives of a 1-D digital function representing a section of horizontal intensity profile from an image.   [4]
    c) Explain about Arithmetic mean filter.   [4]
    d) Discuss about Tonal correction.   [4]
    e) Write a short note on Compression Ratio.   [4]
    f) What is global, Local and dynamic or adaptive threshold?   [2]

PART–B (3x16 = 48 Marks)

2. a) Explain Fast Fourier Transform (FFT) in detail.   [8]
    b) Describe image formation in the eye with brightness adaptation and discrimination.   [8]

3. a) What effect would setting to zero the half of lower-order bit planes have on the histogram of an image in general.   [8]
    b) Discuss the limiting effect of repeatedly applying a 3x3 low-pass spatial filter to a digital image. You may ignore border effects. Is this effect different from applying 5x5 filter?   [8]

4. a) What are the two approaches for blind image restoration? Explain in detail. [8]
    b) Explain about interactive image restoration.   [8]

5. a) Briefly discuss about Complements on the color circle.   [8]
    b) What is color image smoothing? Explain how smoothing will done by neighborhood averaging.   [8]

6. a) Explain about the Fast Wavelet Transform.   [12]
    b) Write a short note on Wavelet Packets.   [4]

7. a) How can you control Over segmentation problem? Explain it.   [8]
    b) Write short notes on Haar Transforms.   [8]