

7E7078

Roll No. \_\_\_\_\_

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7E7078

B. Tech. VII Sem. (Main / Back) Exam., Nov. – Dec. – 2018  
Electronic Instrumentation & Control Engineering  
7EI3A Digital Image Processing  
Common with EC, EIC

Time: 3 Hours

Maximum Marks: 80  
Min. Passing Marks: 26*Instructions to Candidates:*

Attempt any **five** questions, selecting one question from each unit. All questions carry **equal** marks. Schematic diagrams must be shown wherever necessary. Any data you feel missing suitably be assumed and stated clearly.

Units of quantities used/calculated must be stated clearly.

Use of following supporting material is permitted during examination.  
(Mentioned in form No. 205)

1. NIL \_\_\_\_\_

2. NIL \_\_\_\_\_

**UNIT- I**

Q.1 (a) Explain Image sensing and Acquisition. [8]

(b) What do you mean by Image registration? Describe briefly. [8]

**OR**

Q.1 What is Colour model or Colour system? Explain RGB, CMY and HSI colour model. [16]

**UNIT- II**

Q.2 (a) Explain Image smoothing using frequency domain fitters. [8]

(b) What is Spatial Filtering? Define spatial correlation and convolution with an example. [8]

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OR

- Q.2 (a) What is Image Sharpening? Explain first and second order derivatives of image sharpening? [10]
- (b) Explain Histogram equalization of an image. [6]

UNIT- III

Q.3 Write a short note on –

- (a) Inverse filtering [8]
- (b) Wiener filtering [8]

OR

- Q.3 (a) Explain Image Degradation / Restoration Model in brief. [8]
- (b) Explain Erlong (Gamma) Noise and Rayleigh Noise. [8]

UNIT- IV

Q.4 Write a short note on –

- (a) Erosion [8]
- (b) Dilation [8]

OR

- Q.4 (a) What do you mean by gray scale Morphology? [8]
- (b) What is Thinning and Pruning? Explain briefly. [8]

UNIT- V

Q.5 (a) What is Watersheds Transformation and construction of Watershed line or Dams? [12]

(b) What do you mean by Image Thresholding? [4]

OR

Q.5 (a) Explain briefly loss – less predictive image compression Technique/ Coding. [12]

(b) Explain basic Image segmentation operations. [4]