

7E7078

Roll No. _____

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B. Tech. VII Sem. (Main/Back) Exam., Nov.-Dec.-2016
Instrumentation Control Engineering
7EC3A Digital Image Processing

Time: 3 Hours

Maximum Marks: 80

Min. Passing Marks Main: 26

Min. Passing Marks Back: 24

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) What are the basic components of a digital image processing system? Write down the three examples of field that use digital image processing. [8]
- (b) Explain the basic concepts in sampling and quantization digital image processing. [8]

OR

- Q.1 Explain all the elements of visual perception light and electromagnetic spectrum. [16]

UNIT - II

- Q.2 (a) Explain why the discrete histogram equalization technique does not, in general, yield a flat histogram. [8]
- (b) Discuss the limiting effect of repeatedly Applying a 3×3 low pass spatial filter to a digital image. You may ignore border effect. [8]

OR

Q.2 Describes the various types of frequency domain filters. [16]

UNIT – III

Q.3 What is digital image restoration process? Explain noise probability density function. [16]

OR

Q.3 (a) Explain the adaptive median filter and also write application. [8]
(b) Explain the noise estimation parameter. [8]

UNIT – IV

Q.4 Explain the Hit-or-Miss transformation. How can we remove the noise from image by opening and closing morphological operation. rtuonline.com [16]

OR

Q.4 Explain following: - [16]
(a) Convex Hull
(b) Thickening
(c) Skeletons
(d) Pruning

UNIT – V

Q.5 Discuss fundamentals of digital image compression and scaling methodologies. [16]

OR

Q.5 Explain the fundamental of edge – based segmentation. [16]
