

8E8162

FORM NO. \_\_\_\_\_

Total No of Pages: **2**

**8E8162**  
**B.Tech. VIII-Sem (Main & Back) Exam September 2020**  
**Computer Sc. & Engg.**  
**8CS2A Digital Image Processing**  
**CS,IT**

**Time: 2 Hours**

**Maximum Marks: 48**  
**Min. Passing Marks: 16**

**Instructions to Candidates:**

*Attempt three questions, selecting one question each from any three 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) Define the image. Explain the steps of digital image processing with suitable diagram. [8]
- (b) Explain the applications of digital image processing. [8]

**OR**

- Q.1 (a) Explain image sensing and acquisition. [8]
- (b) Explain color vision model with example. [8]

**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 3x3 low pass spatial filter to a digital image. You may ignore border effect. [8]

**OR**

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

**UNIT- III**

Q.3 (a) Explain image degradation and restoration process. [8]

(b) Explain noise and inverse filtering. [8]

**OR**

Q.3 Design Homomorphic filtering. How do we get back the modified image? [16]

**UNIT- IV**

Q.4 (a) Describe Lossy compression techniques. [8]

(b) Explain Huffman coding with example. [8]

**OR**

Q.4 Write a short note on (any two): [2×8=16]

(a) Interpixel redundancy

(b) Psychovisual redundancy

(c) JPEG compression

(d) Coding redundancy

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**UNIT- V**

Q.5 (a) Explain edge detection in detail. [8]

(b) Explain region based segmentation with suitable example. [8]

**OR**

Q.5 (a) Explain Hough transforms. [8]

(b) Explain about Thresholding. [8]