Printed Pages: 3   **NMCAE-31**

(Following Paper ID and Roll No. to be filled in your
Answer Books)

Paper ID : 2012308   Roll No. ☐☐☐☐☐☐☐☐☐☐

MCA

Regular Theory Examination (Odd Sem-V) 2016-17

IMAGE PROCESSING

Time : 3 Hours   *Max. Marks : 100*

Section - A

1   **Attempt all parts. All parts carry equal marks. Write
     answer of each part in short.   (10×2=20)**

    a)   List the components of image processing system.

    b)   What is Quantization?

    c)   What is Fourier Transform?

    d)   Define smoothing process.

    e)   What are the spatial enhancement methods?

    f)   Why gray level interpolation is used?

    g)   State the use of Wiener filter for image restoration.

    h)   What is the use of boundary characteristics in Image
           Segmentation?

    i)   Give names of basic morphological operations.

    j)   Differentiate between optimal and Global
           thresholding.

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Section - B
Attempt any five questions from this section.

(5×10=50)

2. Discuss the fundamental steps in involved in digital image processing.

3. Explain the following terms :
   a) Butterworth   b) Gaussian low pass filters.

4. How an image averaging and image subtraction takes place?

5. Describe Gaussian low pass filter with example.

6. How can we reduce the periodic noise by frequency domain filtering?

7. Write a note on hit or mass transformation.

8. Differentiate between mean and median filters with example.

9. Briefly explain Region Filling algorithm and Boundary Extraction Algorithm.

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Section - C

Attempt any two questions from this section.

(2×15=30)

10. Write short notes on the following :
    a) Histogram Processing
    b) Histogram Equalization
    c) Histogram Matching.

11. How an image is restored and degraded? Explain with an example.

12. Write algorithms for the following :
    a) Convex Hull
    b) Thinning.
    c) Boundary extraction.

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