Printed Pages:02 **Sub Code: NEC-032**

Paper Id: 130820 **Roll No.** | | | | | | | | | | |

B. TECH
(SEM-VII) THEORY EXAMINATION 2018-19
DIGITAL IMAGE PROCESSING

Time: 3 Hours ***Total Marks: 100***

Note: 1. Attempt all Sections. If require any missing data; then choose suitably.

SECTION A

1. Attempt *all* questions in brief. **2 x 10 = 20**

a. What is the Digital Image Processing?
b. Listed the advantages of Wiener filter.
c. What is the need of Image enhancement?
d. What do you mean by degradation?
e. Define: Derivative operators.
f. Define: RGB image.
g. Compare the inverse filter with Wiener filter.
h. Listed the various elements of Digital Image Processing.
i. What is meant by crisping?
j. What is meant by reflectance?

SECTION B

2. Attempt any *three* of the following: **10 x 3 = 30**

a. (i) Explain the various fundamental steps in DIP.
(ii) What is the importance of digitizer in DIP? Explain.
b. Write short note on:
(i) Hadamard Transform
(ii) Slant Transform
c. Explain Band pass Filter Technique for noise reduction. Also explain in detail Minimum Square Error Filtering.
d. Discuss about the principle of lossless compression algorithms with suitable examples.
e. Discuss the technique with example used for the following:
(i) Line Detection
(ii) Edge Detection

SECTION C

3. Attempt any *one* part of the following: **10 x 1 = 10**

(a) Explain the Physical and Biological aspect of Image Acquisition in detail.
(b) (i) Explain sampling and quantization. Explain the effects of reducing sampling and quantization.

(ii) What do you mean by image processing? Explain the steps in image processing with the help of block diagram.

4. Attempt any *one* part of the following: 10 x 1 = 10

(a) What is the difference between image enhancement and image restoration? Mention some important causes of image degradation.

(b) Write short note on:

(i) Slant Transform

(ii) Hadamard Transform

5. Attempt any *one* part of the following: 10 x 1 = 10

(a) What is the Image Restoration? Draw and explain the basic block diagram of the restoration process. Give two areas where restoration process can be applied?

(b) (i) Differentiate between Image enhancement and image restoration process.
(ii) What is meant by exponential noise models? Explain.

6. Attempt any *one* part of the following: 10 x 1 = 10

(a) What do you mean by registration? Explain in brief the Geometrical transformation.

(b) Write short notes on:

(i) Inter-frame coding

(ii) Predictive compression.

7. Attempt any *one* part of the following: 10 x 1 = 10

(a) (i)Describe the technique of thresholding for image segmentation.
(ii)Explain the process of image segmentation using region growing.

(b) What do you mean by image segmentation? What are various image segmentation techniques? Describe due image segmentation technique.

NEC032 CORRECTION E 12.12.18

Q NO 4 b) write short notes on
i) Image Compression Model
ii) Gaussian Noise.

Q NO 5 b(i) What is pass and band reject filtering?