

B. TECH.
THEORY EXAMINATION (SEM-VIII) 2016-17
DIGITAL IMAGE PROCESSING
Time : 3 Hours
Max. Marks : 100
Note : Be precise in your answer. In case of numerical problem assume data wherever not provided.
SECTION – A
1. Attempt all parts of the following questions:
10 x 2 = 20

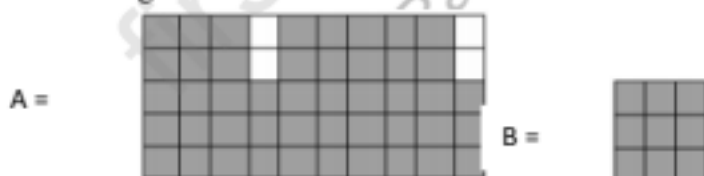
- Define Image. What is Dynamic range?
- What is meant by illumination and reflectance?
- Find the number of bits required to store a 256 X 256 image with 32 gray levels?
- Explain the type of connectivity.
- What is contrast stretching?
- What do you mean by dilation and erosion?
- Explain Noise model.
- List edge detection operators.
- Explain Affine transform.
- Explain the concept of thresholding.

SECTION – B
2. Attempt any five parts of the following questions:
5 x 10 = 50

- What is digital image processing? Draw a block diagram. And discuss some of its major applications.
- Write a short note on**
 - Sampling and Quantization
 - Homomorphic filtering
- Explain Histogram equalization. And equalize the given histogram.

Grey level								
Number of Pixel	790	1023	850	656	329	245	122	81

- Define boundary extraction? Perform boundary extraction on image A with the help of structuring element B



- What is Noise? Define any two noise models in detail.
- What is Geometric transformation? Also discuss Euclidean Transformation.
- How dilation and erosion is used in Morphological operations. How it is used in opening and closing operations.
- Write a short note on**
 - Image Segmentation
 - Sampling and quantization
 - Illumination and reflectance

SECTION – C
Attempt any two parts of the following questions:
2 x 15 = 30

- What are the different stages of digital image processing? Explain each stage in detail.
- Explain the following in details
 - Stereo Imaging
 - Region filling
 - Convex Hull
- What is image restoration? Draw and explain the basic block diagram of the restoration process. Give two areas where restoration process can be applied?