

GUJARAT TECHNOLOGICAL UNIVERSITY**BE - SEMESTER-VIII (OLD) EXAMINATION – WINTER 2018****Subject Code: 181102****Date: 26/11/2018****Subject Name: Fundamentals Of Image Processing****Time: 02:30 PM TO 05:00 PM****Total Marks: 70****Instructions:**

1. Attempt all questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.

- Q.1** (a) What is digital image processing? Write a brief note on objectives of digital image processing. **07**
- (b) With the help of diagram discuss how an image sensing and acquisition process can be performed? **07**
- Q.2** (a) What is Point Processing technique? Enlist Various Point Processing techniques and explain any two of them in brief. **07**
- (b) Write a short note on High Pass filtering in spatial domain. **07**
- OR**
- (b) Define Histogram. How does the histogram equalization process enhance the image? **07**
- Q.3** (a) Explain a model of image degradation/restoration process in brief. **07**
- (b) Explain homomorphic filtering with necessary block diagram for image enhancement. **07**
- OR**
- Q.3** (a) What is redundancy in image? List different types of redundancy available in the digital image? Explain inter-pixel redundancy. **07**
- (b) Draw block diagram of image processing in frequency domain. Explain each block. **07**
- Q.4** (a) Explain Ideal low pass filter and Butterworth low pass filter in frequency domain. **07**
- (b) Explain various steps performed in JPEG2000. **07**
- OR**
- Q.4** (a) Explain edge detection in detail. **07**
- (b) Describe HSI color model. Explain in detail how to convert RGB to HSI color model. **07**
- Q.5** (a) What do you mean by Edge linking? Explain Hough transform in detail. **07**
- (b) Explain dilation and erosion morphological operations with suitable example. **07**
- OR**
- Q.5** (a) Write a short note: Hit and Miss transform. **07**
- (b) Explain Image Segmentation using second order derivative. **07**
