

Seat No.: _____

Enrolment No. _____

GUJARAT TECHNOLOGICAL UNIVERSITY

MCA - SEMESTER-V • EXAMINATION – SUMMER • 2015

Subject Code: 2650011

Date: 11-05-2015

Subject Name: 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) Explain fundamental steps involved in digital image processing. **07**
(b) Explain the components of an image processing system. **07**
- Q.2** (a) Explain basic gray level transformations. **07**
(b) Explain image enhancement using arithmetic/logic operations. **07**
- OR**
- (b) Explain Smoothing Spatial Filters in detail. **07**
- Q.3** (a) Write short note.
1. Noise Model **04**
2. Inverse filter **03**
(b) What is Error-free compression? Explain Huffman coding in detail. **07**
- OR**
- Q.3** (a) Write short note.
1. Coding Redundancy **04**
2. Image compression model **03**
(b) Explain LZW coding in detail. **07**
- Q.4** (a) What is morphology? Explain erosion and dilation in detail. **07**
(b) Attempt following.
1. Boundary extraction **03**
2. Region filling **04**
- OR**
- Q.4** (a) What is image segmentation? Explain Point, Line and Edge detection. **07**
(b) Explain Convex Hull in detail. **07**
- Q.5** (a) Explain Watershed Segmentation and Region Based Segmentation in detail. **07**
(b) Explain Global Segmentation in detail. **07**
- OR**
- Q.5** (a) Explain Local Segmentation in detail. **07**
(b) Explain Correlation Matching and Optimal Statistical Classifier in detail. **07**
