Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

ME SEMESTER II EXAMINATION – SUMMER 2017

Subject Code: 2720208 **Date: 29/05/2017**

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 concept of Neighbors of pixel in detail. What is the use of to calculate neighbors for the pixel? **07**

(b) Describe different distance measures and why it is required? **07**

Q.2 **(a)** Explain different image enhancement in point processing approach. **07**

(b) Explain zooming? Explain the different type of zooming method in detail. **07**

OR

(b) Explain noise. How can you classify noise? **07**

Q.3 **(a)** Equalize the given histogram: **07**

Grey	0	1	2	3	4	5	6	7
No. of Pixel	790	1023	850	656	329	245	122	81

(b) Explain the working of smoothing and sharpening filters with example. **07**

OR

Q.3 **(a)** What do we mean by Gaussian noise and why is an averaging filter used to eliminate it? What is salt and pepper noise and which filter is appropriate to remove it? **07**

(b) Draw the block diagram of the model of the image degradation/restoration process and explain various blocks. **07**

Q.4 **(a)** Explain RGB and HSI colour models in detail. **07**

(b) Explain Image pyramid and Haar transform for N=2 **07**

OR

Q.4 **(a)** What is meant by dilation and erosion? What is meant by structuring elements? **07**

(b) Explain any two lossy compression techniques. **07**

Q.5 **(a)** Explain concept of HIT-or-Miss transformation in detail. **07**

(b) Describe thresholding technique in detail. **07**

OR

Q.5 **(a)** Explain edge detector operator in detail(Any two) **07**

(b) Explain skeletonization and pruning morphological operation in detail. **07**

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