

GUJARAT TECHNOLOGICAL UNIVERSITY**M. E. - SEMESTER – II • EXAMINATION – SUMMER • 2014****Subject code: 1724106****Date: 23-06-2014****Subject Name: Image Matching and Registration****Time: 02:30 pm - 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) Define image registration. Classify various image registration approaches. **07**

(b) Discuss the stereo vision system using block diagram. **07**

Q.2 (a) Explain the steps for generalized image registration process. **07**

(b) Discuss the Marr's theory for computer vision. **07**

OR

(b) Define and explain the terms: multi-sensor, multi-view, multi-temporal, multi-resolution. **07**

Q.3 (a) Explain how area based image registration works? **07**

(b) Compare area based and feature base image registration process. **07**

OR

Q.3 (a) Discuss Fourier transform based image registration process. **07**

(b) How the image registration process is evaluated using various performance parameters? **07**

Q.4 (a) Discuss similarity geometric transformation with necessary mathematical equations. **07**

If an image is translated in x-direction by 25 pixels, translated in y direction by 20 pixels and then after rotated by 18 degree. For a pixel with coordinates (30, 40) what will be the new coordinates?

(b) How the projective and affine transform differs? **07**

OR

Q.4 (a) Write a short note on multi-quadratic transformation. **07**

(b) Discuss the comparison of bilinear and interpolation and nearest neighbor re-sampling methods. **07**

Q.5 (a) Discuss the non-parametric technique for image matching. **07**

(b) Explain any one algorithm for line matching used for image registration. **07**

OR

Q.5 (a) List and discuss the challenges in image registration process for satellite images. **07**

(b) Define and explain chamfer matching. **07**
