

## Section 1

### Question 1

Answer 1: We present a method for region identification in multiple images. A set of regions in different images & the correspondence on their boundaries can be thought of as a boundary in the multi-dimensional space formed by the product of the individual image domains. We minimize an energy functional on the space of such boundaries, thereby identifying simultaneously both the optimal correspondence on their boundaries and use a ratio form for the energy function.

This enabling the global minimization of the energy functional using a polynomial time graph algorithm, among other desirable properties.

### (ii) Image Registration :-

Image registration is the process of transporting different sets of data into one coordinate system. Data may be multiple photographs, data from different sensors, time, depth, or view points. It is used in computer vision, medical imaging, military automatic target recognition, compiling and analyzing image, data from satellites. Registration is necessary in order to be able to

Compare or integrate data obtained from these diff. measurements.

(iii) Edge detection algorithm.

including a variety of mathematical methods that aim at identifying points in a digital image at which the image brightness changes sharply or, more formally has discontinuities. The same problem of finding discontinuities in one dimensional signals is known as step detection. and the problem of finding signal discontinuities over time is known as change detection. Edge detection is a fundamental tool in image processing machine vision and computer vision, particularly in the areas of feature detection and feature extraction.