Section - 1

Q1 Write short notes on the following:
(i) Region extraction
(ii) Image ext registration
(iii) Edge detection algorithm.

Ans⇒1 (i) We present a method for region identification in multiple images. A set of regions in different images & the correspondences 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 regions in each image & the optimal correspondence on their boundaries. We use a ratio form for the energy functional.

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

Ans(ii) Image Registration:-
Image Registration is the process of transforming different sets of data into one coordinate system. Data may be multiple photographs, data from different sensors, times, depths, or viewpoints. It is used in computer vision, medical imaging, military automatic target recognition, and compiling and analyzing images and data from satellites. Registration is necessary in order to be able to compare or integrate the data obtained from these different measurements.

Ans(iii) Edge detection algorithm:-
includes 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 & computer vision, particularly in the areas of feature detection and feature extraction.