

## Lab – 11

**Do not use any inbuilt function**

**Time : 1.5 Hr**

1. A preprocessing step in an application of microscopy is concerned with the issue of isolating individual round particles from similar particles that overlap in groups of two or more particles (see the following image). Assuming that all the particles are of the same size, propose a **morphological algorithm** that produces three images consisting respectively of:
  - a. Only particles that have merged with the boundary of the image. [**Hint: Color the image border pixels the same color as the particles (white). Call the resulting set of border pixels B. Apply the connected component. All connected components that contain elements from B are particles that have merged with the border of the image**]
  - b. Only overlapping particles.
  - c. Only non-overlapping particles.

