Section 2

Q.2 Answer ⇒ Dilation and erosion in morphological operation ⇒

- Dilation operation is used to add pixels to the boundaries of objects in an image, while erosion operation is used to remove pixels from object boundries.
- The number of pixels added or removed from the object in an image depends on the size and shape of the structuring element used to process the image.
- In the morphological dilation and erosion operations, the state of any given pixel in the output image is determined by applying a rule to the corresponding pixel and its neighbours in the input image.
- The rule used to process the pixels defines the operation as

dilation or erosion.

Dilation = $A \oplus B = \{ z | (\hat{B})_z \cap A \neq \phi \}$

Erosion ⇒

$$A \ominus B = \{ z | (\hat{B})_z \in A \}$$

- Opening and closing in morphological operation ⇒

Opening operation is used to remove small object (from the foreground (usually taken as the bright pixels) of an image, placing them in the background, while closing operation is used to remove small holes in the foreground, changing small islands of back background into foreground.

- These techniques can also be used to find specific shapes in an image.

- Opening operation can be used to find things into which a specific structuring element can fit (edges, corners).