Answer all questions   **Time allowed: Two Hours**

Q1. Write a C++ program to generate graphical shapes as shown in the Figure 1. Consider the following steps to accomplish the task.

  i.   Use the **Digital Differential Algorithm** (DDA) to draw straight lines.

  ii. Use the **Mid-Point Circle Algorithm** to draw circle.

  iii. Create the basic shape hexagon and circle with the use of algorithms which are given above.

  iv. Apply 2D transformation techniques to design a sample digital clock as shown in the Figure 1.

   a. Display the text "DIGITAL CLOCK" in the top middle of the screen.

   b. Transform the hexagon to design the clock digits given in the Figure 1.

   c. Place four circles in yellow color as shown in the Figure1.

   d. All circles placed in the corner of the digital clock should move along with the clock boundary in clock wise direction (horizontally or vertically) towards next circle's position.
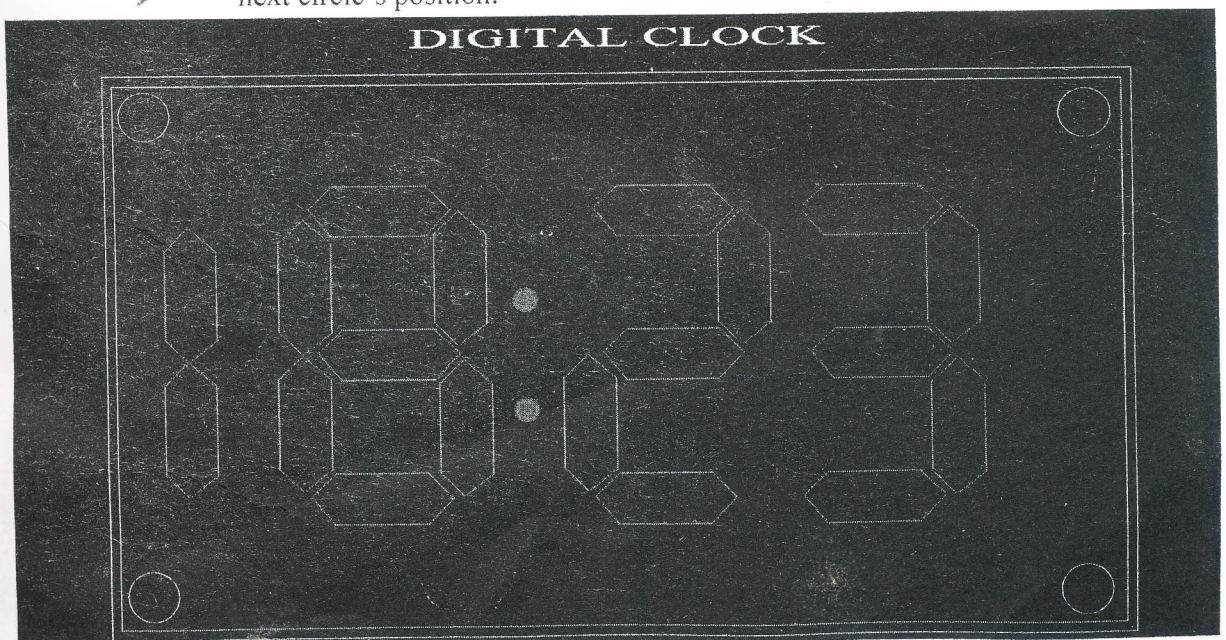

Figure 1