B.Voc. (WT & M) (Sem.–4)
COMPUTER GRAPHICS
Subject Code : BVWM-401-19
M.Code : 79509
Date of Examination : 13-12-22

Time : 3 Hrs.   Max. Marks : 60

INSTRUCTIONS TO CANDIDATES :
1. **SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.**
2. **SECTION-B contains FIVE questions carrying FIVE marks each and students have to attempt any FOUR questions.**
3. **SECTION-C contains THREE questions carrying TEN marks each and students have to attempt any TWO questions.**

SECTION-A

1. **Write briefly :**

    a) List and explain at least 4 applications of computer graphics.

    b) Define pixel and resolution.

    c) Explain the working of two different type of video display devices?

    d) What is lookup table in computer graphics?

    e) Why scan conversion is required and how it's done?

    f) Differentiate between Vector scan display and Raster scan display.

    g) What is text clipping?

    h) How 3D graphics differs from 2D Graphics?

    i) What is perspective projection?

    j) Write about the different area filling techniques. Explain any one in detail.

SECTION-B

2. Explain mid pint circle algorithm. Use mid-point circle drawing algorithm to plot a circle whose radius =20 units and centre at (50, 30).

3. Explain Sutherland Hodgeman polygon clipping algorithm with illustrations.

4. Explain the working of a random scan display system with suitable diagram.

5. Explain DDA algorithm. Scan convert the line segment with end points (30, 20) and (15, 10) using DDA line drawing algorithm.

6. Explain the concept of rotation in computer graphics. A point (4, 3) is rotated counter clockwise by an angle of 450. Find the rotation matrix and the resultant point.

SECTION-C

7. Explain Cohen Sutherland algorithm. Use the Cohen Sutherland algorithm to clip two lines P1(40, 15)-P2(75, 45) and P3(70, 20)-P4(100, 10) against a window A(50, 10), B(80, 10), C(80, 40), D(50, 40).

8. Derive the expression for decision parameter used in Bresenham's Circle algorithm.

9. What are the steps for general 3D rotation if the rotation axis is not parallel to any one of the principal axis. The rotation axis is defined by the points $Pl(x_l, y_l, z_l)$ and $P2(x_2, y_2, z_2)$. Write down the composite matrix representation.

NOTE : Disclosure of Identity by writing Mobile No. or Making of passing request on any page of Answer Sheet will lead to UMC against the Student.