

Roll No.

Total No. of Pages : 02

Total No. of Questions : 09

B.Voc. (WT & M) (Sem.-4)

COMPUTER GRAPHICS

Subject Code : BVWM-401-19

M.Code : 79509

Date of Examination : 05-07-22

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) Differentiate between active and passive graphics.
- b) Explain the working of CRT monitor.
- c) What is the purpose of a frame buffer in a display system?
- d) How RGB color models differs from CMY model?
- e) Explain the scan line algorithms.
- f) What are geometric transformations in computer graphics?
- g) What is the need of homogenous coordinate system? How it is different from Cartesian coordinate system?
- h) Explain translation in 3D graphics with example.
- i) What is parallel projection?
- j) Write about the different line drawing techniques. Explain any one in detail.

SECTION-B

2. Explain Bresenham's algorithm. Consider the line from (5, 5) to (13, 9). Use the Bresenham's algorithm to rasterize this line.
3. Explain Sutherland Hodgeman polygon clipping algorithm with illustrations.
4. Explain two different color generation techniques.
5. Explain DDA algorithm. Scan convert the line segment with end points (30, 20) and (15, 10) using DDA line drawing algorithm.
6. Apply the Shearing transformation to square with A(0,0), B(1,0), C(1,1) and D(0,1) as given below:
 - i) Shear parameter value of 0.5 relative to the line $Y_{ref} = -1$;
 - ii) Shear parameter value of 0.5 relative to the line $X_{ref} = -1$;

SECTION-C

7. Explain Cohen Sutherland algorithm. Given a clipping window A (-20, -20), B(40, -20), C(40,30) and D(-20,30). Using Cohen Sutherland line clipping algorithm, find the visible portion of the line segment joining the points P(-30,20) and Q(60,-10).
8. Given a triangle A(20,10), B(80,20), C(50,70). Find the co-ordinates of vertices after each of the following transformation.
 - a) Reflection about the line $x = y$.
 - b) Rotation of the triangle ABC about vertex A in clockwise direction for an angle 90° .
9. Explain in detail various three dimensional geometric transformations along with Matrices.

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.