

2111000106010001
B.C.A. T.Y (Sem – VI)
Examination October-2023
Computer Graphics

Seat No:

--	--	--	--

[Time: Three hours]

[Max. marks: 70]

- Instructions:**
- (i) All questions are compulsory.
 - (ii) Figures on the right indicates Full marks

Student's Signature

- Q.1 Answer the following in short: (any seven) 14**
1. What is concave polygon? Give examples of it.
 2. Explain aliasing with example.
 3. Define the terms aspect ratio and resolution.
 4. Explain frame buffer and resolution.
 5. Given two points A(2, 3) and B(6,9). Calculate the slope and intercept of this line.
 6. Explain major axis and minor axis of an ellipse.
 7. Give full form of DVST. List advantages of DVST.
 8. List out the advantages and disadvantages of LCD.
 9. Define scaling. Differentiate between uniform and differential scaling?
- Q.2 Answer the following questions in detail. 14**
- (a) Describe the components of CRT. 8
 - (b) Differentiate Raster graphics and Vector graphics. 6
- OR**
- (a) Explain different applications of Computer Graphics. 8
 - (b) Write a note on shadow mask method. 6
- Q.3 Answer the following in detail. 14**
- (a) Explain advantages of Bresenham algorithm compare to VECGEN algorithm. Also, write steps of Bresenham line drawing algorithm. 8
 - (b) Define slope. Describe how a thick line can be drawn. 6
- OR**
- (b) Explain line styles, line caps and line joints in detail. 6
- Q.4 Do as directed: (any two) 14**
- a) Explain the concept of flood fill method with an example.
 - b) What is polygon inside test? Explain any one of the methods to test whether a point is inside or outside the polygon.
 - c) Define polygon. Write a note on pattern fill method in detail.

d) What is shearing? Explain shearing in detail with proper example.

Q.5 Answer the following. (any two)

14

- (a) What is transformation? Explain scaling transformation with an example.
- (b) Derive a matrix to translate a line with vertices A(3,5) and B(4,8) by three units x-coordinates & by four units along y-coordinate and rotate it in anti-clockwise by 45° .
- (c) Consider a triangle with vertices A(20,0), B(60,0) and C(40,100). Enlarge triangle to twice its original size and rotate it 45° in clock-wise direction. Derived the transform points of each co-ordinates of triangle. (Let $\sin 45^\circ = \cos 45^\circ = 0.707$)