













- (c) Explain DDA algorithm. Also, write the advantages and disadvantages of DDA algorithm. 8
4. (a) What do you know about scaling? How do you perform scaling a two-dimensional (2D) object and derive the matrix equation? 8
- (b) Can you convert a 2D object into 3D object using transformations? If possible, derive the matrix for the transformation. 8
- (c) Explain filling algorithm. 4

**Group B**

5. (a) Explain dipping techniques. 6
- (b) Describe Cohen-Sutherland algorithm for clipping line under 2D co-ordinate system. 8
- (c) Explain reflection in a three-dimensional project. 6
6. (a) Derive the matrix to rotate a three-dimensional object about the principal  $x$  and  $y$  axes. 8
- (b) Derive the transformation matrix for perspective projection. 8
- (c) What is windowing transformation? 4
7. (a) What are the applications of projections? 4
- (b) Write a short note on 'rendering'. 6
- (c) Explain hidden line algorithm. 10
8. (a) What is achromatic light? 4
- (b) What are the animation techniques? 8
- (c) Explain about binary space partition. 8

9. Answer the following in brief:

- (i) What is display file?
- (ii) What is meant by scan buffer?
- (iii) What is transformation? Mention its types.
- (iv) Define antialiasing.
- (v) Define viewing transformation.
- (vi) Give an example for curve clipping.
- (vii) How graphics enhances performance of images visualization and picture quality?
- (viii) What is depth cueing?
- (ix) How projection helps in transformation of 3D objects?
- (x) Explain briefly morphing.

**COMPUTER GRAPHICS**

*Time : Three hours*

*Maximum Marks : 100*

*Answer FIVE questions, taking ANY TWO from Group A,  
ANY TWO from Group B and ALL from Group C.*

*All parts of a question ( a, b, etc. ) should  
be answered at one place.*

*Answer should be brief and to-the-point and be supplemented  
with neat sketches. Unnecessary long answers may  
result in loss of marks.*

*Any missing or wrong data may be assumed suitably giving  
proper justification.*

*Figures on the right-hand side margin indicate full marks .*

**Group A**

1. ( a ) Write about different display devices. 8  
( b ) Explain the working of CRT. 10  
( c ) Name some interactive devices. 2
2. ( a ) Explain about Brassensham's line drawing algorithm. 10  
( b ) Explain scanline algorithm. 7  
( c ) Write a short note on halftoning. 3
3. ( a ) Discuss in detail about inverse transformations. 8

(b) Give the equations for translation of an object. 4

(c) Explain curve drawing algorithms. 8

4. (a) How is mid-point circle algorithm used to draw a circle? 8

(b) Define aliasing and antialiasing. 4

(c) Write short notes on 'shearing' and 'reflection'. 8

**Group B**

5. (a) What do you mean by clipping? Explain Sutherland-Hodgeman polygon clipping. 10

(b) Discuss the advantages of clipping. 4

(c) Explain Cohen Sutherland outcode line clipping algorithm. 6

6. (a) Explain about curve and area clipping. 8

(b) What are called z-buffers? 5

(c) How can you transform a three-dimensional image? 7

7. (a) Discuss about the perspective projection in detail. 10

(b) What do you understand by reflections? 4

(c) How can you animate a two-dimensional picture? 6

8. (a) Write about parallel projection in detail. 6

(b) Explain Warnock's algorithm. 8

(c) Write a note on binary space partition. 6

**Group C**

9. Answer the following in brief: 2 × 10

(i) What is display file?

(ii) Give the scaling matrix.

(iii) What is transformation? Write its various types.

(iv) What is flood fill algorithm?

(v) Write different types of parallel projection.

(vi) What is viewing transformation?

(vii) Write the advantages of hidden line removal.

(viii) Name a few animation techniques.

(ix) How do you rotate an object about an arbitrary point.

(x) Compare reflections and viewing projections.

**COMPUTER GRAPHICS**

*Time : Three hours*

*Maximum Marks : 100*

*Answer FIVE questions, taking ANY TWO from Group A,  
ANY TWO from Group B and ALL from Group C.*

*All parts of a question ( a,b,etc.) should  
be answered at one place.*

*Answer should be brief and to-the-point and be supplemented  
with neat sketches. Unnecessary long answer may  
result in loss of marks.*

*Any missing or wrong data may be assumed suitably giving  
proper justification.*

*Figures on the right-hand side margin indicate full marks.*

**Group A**

1. (a) Write a brief note on different display devices. 8  
(b) Explain about CRT. 10  
(c) What is frame buffer ? 2
2. (a) Explain about Bresenham's line drawing algorithm. 10  
(b) Write any two polygon interface algorithm. 6  
(c) Describe about pattern filling techniques. 4
3. (a) Discuss in detail about inverse transformations. 8

*( Turn Over )*

- Jyothis Academy
- (b) Give a note on rotation about an arbitrary point. 7  
 (c) What are the curve fitting techniques ? Explain. 5

4. (a) How to draw a circle using mid-point circle drawing algorithm ? 8  
 (b) Give the matrix representation for two-dimensional scaling, shearing and reflection. 8  
 (c) Define aliasing and anti-aliasing. 4

**Group B**

5. (a) Explain about Southerland Hodgeman polygon clipping. 7  
 (b) How can clip a text ? What are the types of text clipping ? 6  
 (c) Discuss about Cohen Southerland outcode line clipping algorithm. 7
6. (a) Explain about curve and area clipping. 6  
 (b) How to animate a two-dimensional figure using transformation techniques ? 8  
 (c) Explain about Z buffers. 6
7. (a) Discuss about the perspective projection in detail. 10  
 (b) What is windowing transformation ? 3  
 (c) Explain about binary space partition. 7
8. (a) Explain about three-dimensional transformation. 8

- (b) Write a note on parallel projection. [www.amieindia.in](http://www.amieindia.in)  
 (c) Discuss in detail about Warnock's algorithm. 7

**Group C**

9. Answer the following in short : 2 × 10
- (i) What is display file ?  
 (ii) Mention drawbacks of DDA algorithm.  
 (iii) Give the scaling matrix and general fixed point matrix.  
 (iv) What is transformation ? Write its different types.  
 (v) What is seedfill algorithm ?  
 (vi) What is clipping ? Write its different types.  
 (vii) What is halftoning ?  
 (viii) Write the types of parallel projection.  
 (ix) What is viewing transformations ?  
 (x) What are the steps to get reflected image through an arbitrary line ?