

Question Bank  
BCA III Year  
Computer Graphics

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**Multiple Choice Questions**

1. Expansion of line DDA algorithm is
  - a) Digital difference analyzer
  - b) Direct differential analyzer
  - c) Digital differential analyzer
  - d) Data differential analyzer
2. Which algorithm is a faster method for calculating pixel positions?
  - a) Bresenham's line algorithm
  - b) Parallel line algorithm
  - c) Mid-point algorithm
  - d) DDA line algorithm
3. An accurate and efficient raster line-generating algorithm is
  - a) DDA algorithm
  - b) Mid-point algorithm
  - c) Parallel line algorithm
  - d) Bresenham's line algorithm
4. In Bresenham's line algorithm, if the distances  $d_1 < d_2$  then decision parameter  $P_k$  is \_\_\_\_\_
  - a) Positive
  - b) Equal
  - c) Negative
  - d) Option a or c
5. Which is the best line algorithm to balance the processing load among the processors?
  - a) Parallel line algorithm
  - b) DDA line algorithm
  - c) Bresenham's line algorithm
  - d) Position Bresenham's line algorithm
6. To apply the midpoint method, we define
  - a)  $\text{circle}(x, y) = x^2 + y^2 - r^2$
  - b)  $\text{circle}(x, y) = x^2 + y^2 - r^2$
  - c)  $\text{circle}(x, y) = x^2 - y^2 - r^2$
  - d)  $\text{circle}(x, y) = x^2 + y^2 - z^2$
7. A line with endpoints codes as 0000 and 0100 is ?
  - a) Completely Visible
  - b) Completely invisible
  - c) Partially invisible
  - d) Trivially invisible

8. Consider the following transformation matrix for rotation(clockwise). This matrix rotates an object by an angle  $\theta$  about :

$$[T] = \begin{bmatrix} \cos\theta & \sin\theta & 0 & 0 \\ -\sin\theta & \cos\theta & 0 & 0 \\ 0 & 0 & 1 & 0 \\ 0 & 0 & 0 & 1 \end{bmatrix}$$

transformation matrix for rotation

- a) X-axis  
b) Y-axis  
c) Z-axis  
d) All of the above
9. In random scan display, the frame buffer holds -  
(a) Line drawing commands  
(b) Scanning instructions  
(c) Image resolution  
(d) Intensity information
10. Bean penetration method is usually used in -  
(a) LCD  
(b) Raster Scan Display  
(c) Random Scan Display  
(d) None of the above
11. The quality of an image depend on -  
(a) Number of pixel used by image  
(b) Number of line used by image  
(c) Number of resolution used by image  
(d) None of the above
12. The process of extracting a portion of a database or a picture inside or outside a specified region is called -  
(a) Transformation (b) Projection  
(c) Clipping (d) Mapping
13. Picture definition is stored in a memory area called:  
(a) Pixmap (b) Refresh buffer  
(c) Vector (d) None of these
14. Every line end point in a picture is assigned a four digit binary code, called a .....  
(a) Binary Code (b) Unicode  
(c) Region Code (d) None of these

15. The maximum number of points that can be displayed without overlap on a CRT is referred to as:-
- (a) Resolution (b) Persistence
  - (c) Attenuation (d) None of the above.
16. Shearing operation results into:-
- (a) Extension of shape (b) Distortion of shape
  - (c) Reflection of shape (d) None of the above.
17. The method that speeds up the processing of line segments by performing initial tests that reduce the number of interaction is Clipping:
- (a) Cohen — Sutherland line (b) Liang Barsky line
  - (c) Nicholl — Lee—Nicholl line (d) none.
18. Which image format gives the option of interlace during saving in GIMP?
- a) JPEG
  - b) GIF
  - c) TIFF
  - d) None of the above
19. Which image format supports animation?
- a) JPEG
  - b) GIF
  - c) TIFF
  - d) None of the above
20. Which setting is responsible for the correspondence between electrical intensity and color brightness.
- a) Contrast
  - b) Brightness
  - c) Gamma
  - d) None of the above
21. What does HSV color model stands for?
- a) Hue, Saturation and Value
  - b) Hue, Surface and Value
  - c) Hue, Saturation and Variation
  - d) None of the above
22. What is the advantage of using Gaussian blur?
- a) Blurring in less time
  - b) Less space needed
  - c) Blurs different file formats
  - d) None of the above

## Short Answer Type Question

1. Write a short note on working of raster scan display system and random scan display system.
2. Explain working of Video controller.
3. Explain refresh cathode ray tube.
4. Explain various application of Graphics programming?
5. Explain Flat Panel Display with its advantages and disadvantages.
6. Explain Shadow mask and beam penetration method.
7. Explain flat-panel display in detail.
8. Explain midpoint Circle algorithm. Give example.
9. Explain midpoint ellipse algorithm. Give example. Write the properties of Ellipse.
10. What do you understand by Composite Transformations?
11. Perform a 45° rotation of objects A (2, 1), B(5, 1), C(5, 6) in clockwise direction and give the coordinates of the transformed objects.
12. Explain window to view port coordinate transformations?
13. Write a short note on translation
14. Write a detail note on Shear.
15. What is clipping? Explain polygon clipping.
16. Explain Sutherland Hodgeman polygon clipping algorithm.
17. Explain Nicholl – Lee Nicholl line clipping algorithm.
18. Explain Weiler Atherton polygon clipping algorithm
19. Write a detail note on following: (a) Curve Clipping (b) Text Clipping
20. What is GIMP? Explain Its features.
21. Write any 5 tools of GIMP with working.
22. Write the steps to design an ID Card in GIMP.
23. Is it possible to link two layers? How?
24. How can we align layers relative to each other?
25. How can one scale an image in GIMP?

## Long Answer Type Questions

1. Explain DDA line drawing algorithm with its drawbacks. Draw a line using DDA, having coordinates as (-1, -4) and (5, 6)?
2. Explain bresenham's line drawing algorithms.
3. Explain parallel line drawing algorithms.
4. Differentiate between emissive and non-emissive display.
5. Define CRT and Explain the working of CRT with its basic design.
6. Explain in detail the hard copy devices with its different types.
7. Write short note on 1. Plasma Panel Display 2. LCD
8. What is character generation in computer graphics?
9. What are lines, curve attributes and character attributes
10. Explain composite transformation
11. Explain two Dimensional geometric transformation.
12. Explain the following transformation with the matrix representations. Give suitable diagram for illustration. • Translation. • Scaling. • Rotation
13. Scale the surface A(2, 2, 2), B(4, 4, 4), C(5, 5, 5), D(6, 6, 6) with respect to point (7, 7)
14. Scale the object with co-ordinates A (2, 1), B (2, 3), C (4, 2) and D (4, 4) with a scale factor of  $S_x = 2$ .

15. Let ABCD be the rectangular window with A(20,20) B(90,20) C(90,70) and D (20,70) . Find region code for the endpoints and use Cohen Sutherland Algorithm to clip the line P1, P2 with P1(10,30) and P2(80,90)
16. Explain Liang Barsky Line Clipping with example.
17. Explain Cohen Sutherland Line Clipping with example.
18. What is a Layer in GIMP? What all operations can be performed over a layer?
19. Explain various Selection Tools of GIMP
20. Explain the concept of Canvas in GIMP. In GIMP how can you increase size of the canvas?
21. What so you understand by Single-point & Two-point perspective?
22. Explain various Transform Tools of GIMP.