

COMPUTER GRAPHICS

16UIT621

K1 LEVEL QUESTIONS

UNIT I

1. Which is the primary output device in a graphics system?
 - a. Touch panel
 - b. CRT screen
 - c. **Video monitor**
 - d. Audio only
2. The operation of most video monitors is based on which standard?
 - a. **Cathode Ray Tube**
 - b. Focusing anode
 - c. Control grid
 - d. Anode
3. Recall that the maximum number of points that can be displayed without overlap on CRT is referred as -----
 - a. Persistence
 - b. **Resolution**
 - c. Aspect ratio
 - d. Adjacent spots
4. For system with multiple bits per pixel, the frame buffer is often referred to as which of the following
 - a. Bitmap
 - b. Pixel
 - c. Picture scan
 - d. **Pix map**
5. Spell that the return to the left of the screen, after refreshing each scan line is called as ---
 - a. **Horizontal retrace**
 - b. Vertical retrace
 - c. Both a and b
 - d. None of the above
6. When a small set of lines is to be displayed, each refresh cycle is delayed to avoid refresh rates greater than _____
 - a. **60 frames**
 - b. 50 frames
 - c. 70 frames
 - d. 40 frames

7. Which of the following Methods are commonly used in Raster-scan systems?
 - a. Beam penetration
 - b. CRT
 - c. **Shadow mask**
 - d. None of the these
8. Stereoscopic viewing is also a component in which of the following?
 - a. Raster scan
 - b. **Virtual reality**
 - c. CRT
 - d. Frame buffer
9. Which of the following is used to control the operation of the display device.
 - a. Video controller
 - b. Display controller
 - c. Video monitor
 - d. **Both a and b**
10. Recall that Diagonal screen dimensions for general purpose personal computer system can range from_____.
 - a. **12 to 21 inches**
 - b. 21 to 31 inches
 - c. 14 to 24 inches
 - d. 16 to 26 inches

UNIT-II

1. Graphical programming packages provide function to describe a scene in terms of basic geometric structures referred as _____.
 - a. Input primitives
 - b. **Output primitives**
 - c. Display primitives
 - d. Picture primitives
2. A _____ stores point-plotting instruction in the display list.
 - a. **Random scan system**
 - b. Raster scan system
 - c. Both
 - d. None on the above
3. The color-codes which are stored in frame buffer for the intensities that are to be display at the_____.
 - a. **Screen pixel position**
 - b. End point position
 - c. Discrete position
 - d. None of the above
4. _____ position referenced by scan line number and column number
 - a. Slope-intercept
 - b. Line
 - c. **Pixel**
 - d. Curve

5. Stair step effect produced when a line is generated as a _____ of pixel positions.
 - a. Random
 - b. Bit wise
 - c. Parallel
 - d. **Series**
6. The Cartesian slope-intercept equation for a straight line is _____.
 - a. $\Delta y = m \Delta x$
 - b. **$Y = mx + b$**
 - c. $Y = m(x_k + 1) + b$
 - d. $M = \Delta y / \Delta x$
7. On raster system, lines are plotted with pixels and step size in the horizontal and vertical direction are constrained by _____.
 - a. **Pixel separation**
 - b. Scan conversion
 - c. Input primitives
 - d. Display primitives
8. Expand DDA
 - a. **Digital Differential Analyzer**
 - b. Differential Diagonal Analyzer
 - c. Diagonal Differential Analyzer
 - d. Differential Digital Analyzer
9. _____ algorithm is a faster method for calculating pixel position.
 - a. **DDA**
 - b. Bresenham
 - c. Both
 - d. None
10. An accurate and efficient raster line-generating algorithm developed by _____.
 - a. DDA
 - b. **Bresenham**
 - c. Both
 - d. None

UNIT-III

1. A _____ is applied to an object by repositioning it along a straight-line path from one coordinate location to another.
 - a. Transposition
 - b. **Translation**
 - c. Scaling
 - d. Rotation
2. The translation distance pair (t_x, t_y) is called a _____.
 - a. Translation vector
 - b. Shift vector
 - c. **Both a and b**
 - d. None of the above

3. A two dimensional _____ is applied to an object by responding it along a circular path in the xy plane.
 - a. Transformation
 - b. Scaling
 - c. Transposition
 - d. **Rotation**
4. A _____ transformation alters the size of an object.
 - a. **Scaling**
 - b. Rotation
 - c. Clipping
 - d. None of the above
5. We can control the location of a scaled object by choosing a position, called the _____.
 - a. Mid-point
 - b. **Fixed point**
 - c. Pivot point
 - d. Rotation point
6. Rotation point is also called _____.
 - a. **Pivot point**
 - b. Fixed point
 - c. Mid-point
 - d. None of the above
7. _____ are standard methods for implementing transformations in graphics system.
 - a. Homogeneous representation
 - b. Heterogeneous representation
 - c. **Matrix representation**
 - d. Both a and b
8. Forming products of transformation matrices is often referred to as a _____ of matrices.
 - a. Composition
 - b. Concatenation
 - c. **Both a and b**
 - d. None of the above
9. A _____ is a transformation that produces a mirror image of an object.
 - a. Rotation
 - b. Refraction
 - c. **Reflection**
 - d. Shear
10. A transformation that distorts the shape of an object, such that the transformed shape appears as if the object curve composed of internal layers that had been caused to slide over each other is called a _____.
 - a. **Shear**
 - b. Rotation
 - c. Reflection
 - d. Refraction

UNIT V

- Back face detection is a _____ method.
 - Image-space method
 - Both (a) and (b)
 - Object-space method**
 - None of the above.
- BSP stands for _____
 - Binary space-partitioning tree**
 - Binary simple-partitioning tree
 - Bit space-partitioning tree
 - Bit wise simple partitioning
- Parameter visibility Function Index is assigned _____ code to identify the visibility method.
 - Double
 - Long integer
 - Integer**
 - Float
- _____ is red color at low frequency.
 - 4.3×10^{14} hertz**
 - 4.3×10^{16} hertz
 - 4.3×10^{18} hertz
 - 4.3×10^{12} hertz
- Saturation parameter specifies _____ of a color
 - relative purity**
 - rational purity
 - relative frequency
 - relative luminance
- z-buffer method is also referred as _____
 - depth-sorting method
 - depth-cueing method
 - depth-buffer method**
 - none of these
- Which field of a-buffer stores a positive and negative real number?
 - intensity field
 - depth field**
 - surface field
 - none of these
- Which field of a-buffer stores a pointer value?
 - intensity field**
 - depth field
 - surface field
 - none of these
- Painter's algorithm solves _____ problem.
 - hidden-surface**
 - hidden-view
 - both a and b
 - none
- Which surface is one that completely encloses the area?
 - surrounding surface**
 - overlapping surface
 - inside surface
 - outside surface.

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K2 LEVEL QUESTIONS

UNIT I

1. Explain boiled off in CRT.
2. Define refresh CRT.
3. Explain the function of focussing system in CRT.
4. What is persistence?
5. Describe the CRT resolution.
6. Mention a property of video monitor.
7. Compare the picture definition of raster-scan display and random-scan display.
8. Illustrate the working of raster-scan display.
9. Illustrate the working of random-scan display.
10. Mention the two techniques for producing color with a CRT.

UNIT II

1. What are output primitives?
2. Compare DDA with other line drawing algorithm.
3. Give the cartesian slope-intercept equation for a straight line.
4. Give the reason to use Bresenham line drawing algorithm.
5. Classify the line types.
6. Give some line attributes.
7. Define output parameters.
8. List out the line caps.
9. List out the line joins.
10. Define butt caps.

UNIT III

1. List out basic 2D transformation.
2. Demonstrate scaling.
3. Illustrate rotation.
4. Define translation
5. Formulate matrix representation of 2D scalling.
6. Generate matrix representation of 2D rotation.
7. Give matrix representation of 2D translation.
8. Formulate composite transformation matrix representation of 2D scalling.
9. Generate composite transformation matrix representation of 2D rotation.
10. Give composite transformation matrix representation of 2D translation.

UNIT IV

1. Compare prespective projection and parallel projection.
2. Categorize the 3D representation.
3. List out any two 3D display methods.
4. Define depth cueing.
5. List out the methods used to show internal structures and relationship of object parts.
6. How the depth cueing is applied?
7. Mention group organization of polygon table.
8. Mention the three data table that used to check errors in polygon table.
9. How can a curve and surrface equations can be expressed?
10. Which class of an object describes the quadratics?

UNIT V

1. Categorize the two methods of visible-surface detection.
2. Compare object-space method and image-space method.

3. Describe z-buffer method.
4. Give the two important fields of A-Buffer method.
5. List out any 4 data for each surface in the linked list of A-Buffer method.
6. Mention the two basic functions of depth-sorting method.
7. Refer BSP-tree in a line.
8. Why area-subdivision method takes advantage of area coherence. Explain.
9. Predict the relative surface characteristics of area-subdivision method.
10. Refer overlapping surface in a line.

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K3 LEVEL QUESTIONS

UNIT I

- 1). Discuss color CRT monitors.
- 2). Describe briefly about Raster-scan Displays.
- 3). Explain random-scan system in brief with neat diagram.
- 4). Illustrate the implementing ways of graphics functions of graphic software with neat diagram.
- 5). Discuss the software standards of graphic software.

UNIT II

- 1). Demonstrate Digital Differential Analyzer algorithm.
- 2). Describe briefly about Parallel Line algorithm.
- 3). Explain line width in brief.
- 4). Illustrate the implementing ways of curve attribute.
- 5). Illustrate a possible scheme for color values in a color lookup table.

UNIT III

- 1). Elaborate two-dimensional rotation transformation.
- 2). Give an outline on scaling transformation.
- 3). Classify homogeneous coordinates for all two-dimensional transformations.
- 4). Explain reflection transformation in brief.
- 5). Explain shear transformation using an example.

UNIT IV

- 1). Elaborate 3D graphics packages.
- 2). Explain any five 3D display methods.
- 3). Discuss briefly on Polygon table.

- 4). Explain Quadric Surfaces in brief.
- 5). Discuss briefly on Super Quadrics.

UNIT V

- 1). Elaborate A-Buffer method.
- 2). Explain BSP-Tree method.
- 3). Discuss briefly on Octree method with neat diagram.
- 4). Explain Curved surface method.
- 5). Discuss briefly on wire frame method.

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K4 AND K5 LEVEL QUESTIONS

UNIT I

- 1). Give an outline of Cathode Ray tube in detail.
- 2). Demonstrate raster-scan system with neat diagram.
- 3). List out the input devices with brief explanation.
- 4). Summarize graphical software in detail.
- 5). Discuss in detail about raster-scan system and random-scan system.

UNIT II

- 1). Demonstrate bresenham's line drawing algorithm using an example.
- 2). Demonstrate midpoint circle algorithm using an example.
- 3). List out all the line attributes with brief explanation.
- 4). Summarize the area-fill attributes.
- 5). Discuss in detail about character attributes.

UNIT III

- 1). Discuss the basic transformations.
- 2). Summarize the composite transformation using homogenous coordinates.
- 3). Demonstrate the Cohen-Sutherland line clipping with an example.
- 4). Give an outline on Sutherland-Hodgeman polygon clipping.
- 5). Give an outline on curve and text clipping.

UNIT IV

- 1). Give an outline on General Three-Dimensional Rotation with neat diagram.
- 2). Summarize the 3D Polygon Surfaces.
- 3). List out all the 3D Display method and explain in detail.

- 4). Give an outline on Quadric Surfaces and Super Quadrics.
- 5). Summarize 3D Translation and 3D scaling

UNIT V

- 1). Give an outline on Depth-Buffer method with neat diagram.
- 2). Summarize the Depth sorting method.
- 3). Discuss the Area-subdivision method in detail .
- 4). Give an outline on properties of light with neat diagram.
- 5). Summarize Standard Primaries and Chromaticity diagram.