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COMPUTER GRAPHICS-QUESTION BANK

UNIT I-2D PRIMITIVES

PART – A

1. Define Computer graphics.
2. Define refresh buffer/frame buffer.
3. What is pixel?
4. Define aspect ratio.
5. What is Output Primitive?
6. What is DDA?
7. What are the disadvantages of DDA algorithm?
8. Digitize a line from (10,12) to (15,15) on a raster screen using Bresenhams straight line algorithm.
9. What is attribute parameter?
10. What are the basic lines attributes?
11. What is meant by antialiasing?
12. Define Translation.
13. Define Rotation.
14. Define Scaling.
15. Define Reflection.
16. Define Shear.
17. Define Window.
18. Define view port.
19. What is viewing transformation?
20. Define Clipping.
21. What are the types of Clipping?
22. What is the purpose of presentation graphics?
23. What is frame buffer?

PART-B

1. Explain DDA line drawing algorithm with Example.
2. Explain about Bresenham's circle generating algorithm.
3. Write down and explain the midpoint circle drawing algorithm. Assume 10 cm as the radius and co-ordinate as the centre of the circle.
4. Explain about Bresenham's ellipse generating algorithm.
5. Write down and explain the Bresenham's line drawing algorithm with an example.
6. Write short notes on attributes of output primitives.
7. Explain in detail the Sutherland-Hodgeman clipping algorithm with an example.
8. Write about Cohen-Sutherland line clipping algorithm with an example.
9. Explain about two dimensional geometric transformations.
10. Write short notes on clipping operations.
11. Calculate the pixel location approximating the first octant of a circle having centre at (4,5) and radius 4 units using Bresenham's algorithm.

12. Discuss in brief Antialiasing techniques.

UNIT II-3D CONCEPTS

PART–A

1. Differentiate parallel projection from perspective projection.
2. What is shear transformation
3. What are spline curves?
4. Define quadric surfaces.
5. Categorize the 3D object representations?
6. What is a B-reps?
7. What is space-partitioning representation?
8. What is Transformation?
9. What are the types of transformations?
10. What is projection? What are the types of projection?
11. Write the matrix for 3D z-axis rotation.
12. Write the matrix for 3D translation.
13. What are the steps in 3D rotation?
14. What is scaling?
15. What is shearing?
16. What is reflection?
17. Distinguish between window port & view port?
18. What is the need of homogeneous coordinates?
19. What is fixed point scaling?

PART-B

1. With suitable examples explain all 3D transformations.
2. Differentiate parallel and perspective projections and derive their projection matrices.
3. Explain about 3D object representation.
4. Write short notes on polygon surfaces and quadric surfaces.
5. Write short notes on Bezier curve and spline.
6. Write short notes on visible surface detection methods.

UNIT-III COLOR MODELS

PART – A

1. How will you convert from YIQ to RGB color model?
2. What are subtractive colors?
3. What is RGB color model? How RGB model represented?
4. How RGB is converted to CMY?
5. How CMY is converted to RGB?
6. What is HSV color model? Draw HSV hexcone.
7. What is HLS color model?
8. What is animation? List different types of animation.
9. Define keyframe.
10. Define morphing.
11. What is Frame-by-Frame animation?
12. What does story board define?
13. What is OPENGL?

14. Give the format OpenGL vertex command?
15. What is the use of glPointSize?
16. What is the Model view Matrix?
17. What is the Viewport Matrix?

PART-B

1. Explain about various color models?
2. Explain in detail the CMY color model.
3. Compare and contrast between RGB and CMY color models.
4. Write notes o RGB and HSV color models.
5. Write notes on raster animation.
6. Discuss the methods to draw 3D objects and 3D scenes?
7. What is OpenGL? Discuss the basic operations of OpenGL.

UNIT IV – RENDERING

PART - A

1. What is a shading model?
2. Define shading.
3. Differentiate flat and smooth shading
4. How are shadow areas displayed
5. What is texture?
6. What are the two types of smooth shading?
7. What is Phong shading?
8. What is texture mapping/ pattern mapping?
9. What is environment mapping/ reflection mapping?
10. Write down the function of texture(s,t)?
11. What is the visible intensity?
12. What is the use of glTexCoord2f function?
13. Write down the OpenGL command to define a quadrilateral face.
14. Give the basic idea of reflection Mapping.
15. What is called a shadow buffer?
16. What does sliding means?
17. Write down the syntax for glFramebufferRenderbufferEXT.
18. What is the function of glCheckFramebufferStatusEXT?
19. Write down the syntax for glGetRenderbufferParameteriveEXT.
20. List out some of the rules of FBO completeness.

PART-B

1. Explain the following a) Adding texture to faces b) creating shaded objects.
2. Explain the following a) Adding shadows to objects b) drawing shadows.
3. How do you create shaded objects and draw shadows explain?
4. Explain about shading models?
5. Write down and explain the details to build a camera in a program.
6. Explain in detail about Flat and Smooth shading?

UNIT V and VI – FRACTALS and Ray Tracing

PART – A

1. Define Fractals. Give examples.
2. List out some properties of fractal.
3. What are three types of self-similarity found in fractals?
4. What is Koch Curve?
5. Give the general procedure to construct Koch curve.
6. What is known as L-Systems?
7. What are the instructions to be followed in L-systems?
8. What is Julia sets?
9. Differentiate Mandelbrot and Julia sets.
10. What is String Production Rules?
11. What is Iterated Function System (IFS)?
12. Give the rules for Dragon Curves?
13. Give the parameter to represent each curves based on String production.
14. What is space-filling curve?
15. What is Ray Tracing?
16. What is the state of a turtle?
17. What is the functionality of hit methods?
18. What is known as Surface texture?
19. What is total internal reflection?
20. What is Constructive solid geometry?
21. What is CSG Objects?

PART-B

1. Write notes on the following
a. Peano curves
b. Julia sets
c. Mandelbrot sets
d. Random fractals.
2. Discuss the following
a. Reflection and transparency
b. Boolean operations on objects.
3. Write about random fractals in detail.
4. Define Koch curve? How do you construct the Koch curve?
5. Explain about Mandelbrot sets?
6. Explain about Julia sets?
7. Explain about Intersecting rays with other primitives?
8. Explain about Boolean operation on objects?