

Long Questions

1. What are the application areas of computer graphics?
2. Describe the major components of a graphics system.
3. Explain the functioning of video display devices in computer graphics.
4. Compare and contrast raster-scan and random-scan display systems.
5. Describe the role of graphics monitors and their evolution in computer graphics.
6. List and explain various input devices used in computer graphics and their significance.
7. Define the term 'output primitives' in the context of computer graphics.
8. Explain the DDA line drawing algorithm, including its mathematical foundation.
9. Describe Bresenham's line drawing algorithm and why it is preferred over other algorithms.
10. Discuss the steps involved in the circle-generating algorithm.
11. Explain the ellipse-generating algorithm and its computational requirements.
12. How are points and lines used as the basic elements in creating graphic images?
13. What is the scan-line polygon filling algorithm, and how does it work?
14. Explain the boundary-fill algorithm along with an example.
15. Describe the flood-fill algorithm and compare it with the boundary-fill algorithm.
16. Discuss the efficiency and application areas of scan-line versus flood-fill algorithms.
17. Define 2-D geometric transformations and their significance in computer graphics.
18. Explain the translation transformation with suitable examples.
19. Discuss scaling transformations and their impact on graphics objects.
20. How is the rotation transformation applied in computer graphics?
21. Describe reflection and shear transformations with examples.
22. Explain the concept of matrix representations and homogeneous coordinates in transformations.
23. What are composite transformations, and how are they applied?
24. Discuss transformations between coordinate systems and their importance.
25. Define the viewing pipeline in 2-dimensional graphics.
26. Explain the concept of viewing coordinate reference frame.
27. Describe the window-to-viewport coordinate transformation.
28. Discuss the various viewing functions used in computer graphics.
29. Explain point clipping and its applications in computer graphics.

30. Describe the Cohen-Sutherland algorithm for line clipping.
31. Discuss the Sutherland-Hodgeman algorithm for polygon clipping and its implementation.
32. Explain the representation of 3-D objects with polygon surfaces.
33. Discuss quadric surfaces and their use in graphics rendering.
34. Define splines and discuss their application in computer graphics.
35. Explain the Hermite curve, including its mathematical properties.
36. Describe the Bézier curve and its significance in graphic design.
37. Discuss B-Spline curves and their advantages in curve design.
38. What are the challenges of rendering 3-D images on 2-D screens?
39. Discuss the role of computer graphics in virtual reality environments.
40. Explain the concept of ray tracing in computer graphics.
41. Describe the use of shaders in modern graphics processing.
42. What is texture mapping, and how is it applied in rendering?
43. Discuss the role of anti-aliasing in graphics rendering.
44. Explain the principles of color theory as applicable to computer graphics.
45. Describe the impact of lighting models in 3-D graphics.
46. Discuss the role of algorithms in computer graphics.
47. Explain the algorithmic approach to generating fractal graphics.
48. What are the key differences between wireframe and solid modeling?
49. Describe the techniques used in motion capture for graphics animation.
50. Discuss the role of compression techniques in graphics transmission and storage.
51. Explain procedural modeling and its application in graphics.
52. What is image synthesis, and how is it achieved in computer graphics?
53. Discuss the principles behind particle systems in animations.
54. Explain how computer graphics is used in medical imaging.
55. Discuss the application of computer graphics in video games.
56. Describe the use of computer graphics in simulation and training.
57. What role does computer graphics play in scientific visualization?
58. Discuss the application of graphics in multimedia systems.
59. How are graphical user interfaces (GUIs) dependent on computer graphics?
60. Discuss the mathematical theories that underpin computer graphics.
61. Explain the role of geometry in graphic design.
62. What is the significance of vectors in computer graphics?
63. Describe the concept of graphical standards and their importance.
64. Discuss the future trends in computer graphics technology.
65. How is computer graphics implemented in web design?
66. Explain the challenges and solutions in mobile graphics rendering.

67. What are the hardware requirements for high-end computer graphics production?
68. Describe the process of creating 3-D animations from 2-D images.
69. Discuss the ethical considerations in the use of computer graphics.
70. Explain the role of open-source software in computer graphics development.
71. How is computer graphics utilized in automotive design?
72. Discuss the use of computer graphics in architectural visualization.
73. Explain the impact of computer graphics on the fashion industry.
74. Describe the role of computer graphics in advertising and marketing.
75. Discuss the integration of computer graphics with artificial intelligence and its potential impacts.

