

M.E. / M.Tech. - DEGREE EXAMINATIONS, NOV / DEC 2025

First Semester

M.E. - CAD/CAM

24PCDPC103 - COMPUTER GRAPHICS

Regulations - 2024

Duration: 3 Hours

Max. Marks: 100

PART - A (MCQ) (10 × 1 = 10 Marks)

Answer ALL Questions

	<i>Marks</i>	<i>K-Level</i>	<i>CO</i>
1. Among the given scientists/inventor who is known as the father of Computer Graphics (a) Nikola Tesla (b) Ivan Sutherland (c) Ada Lovelace (d) Marie Curie	1	K1	CO1
2. Which of the following plane is used for 2D transformations (a) 1D Plane (b) 2D Plane (c) 3D Plane (d) 4D Plane	1	K1	CO1
3. A polygon in which the line segment joining any 2 points within the polygon lies completely inside the polygon is called ___ (a) convex polygon (b) concave polygon (c) convert polygon (d) None of the above	1	K2	CO2
4. A polygon in which the line segment joining any 2 points within the polygon may not lie completely inside the polygon is called _____ (a) convex polygon (b) concave polygon (c) convert polygon (d) None of the above	1	K2	CO2
5. Which of the following is a Computer Graphics Curve? (a) Bezier Curves (b) Implicit Curves (c) Explicit Curves (d) All of the above	1	K1	CO3
6. Which of the following operation can be applied on a 3 D object to rotate it about any axis from its original position? (a) Translation (b) Scaling (c) Rotation (d) Shearing	1	K1	CO3
7. Which of the following is not a colour model? (a) XYZ colour model (b)YIQ colour model (c) RGB colour model (d) ABC colour model	1	K1	CO4
8. In the HSV colour model, what does the 'H' represent? (a) Intensity (b) Saturation (c) Hue (d) Value	1	K1	CO4
9. Which visual effects technique works by transforming one object or shape into a different one? (a) Tweening (b) Morphing (c) Keyframing (d) Tiling	1	K1	CO5
10. The process of simulating the path of light as a means of generating realistic images is known as: (a) Scan conversion (b) Rasterization (c) Ray tracing (d) Turtle graphics	1	K2	CO5

PART - B (12 × 2 = 24 Marks)

Answer ALL Questions

11. Explain the purpose of Graphics Monitors in a computer system.	2	K2	CO1
12. Outline the role of Input Devices in a graphics system.	2	K2	CO1
13. Infer why the viewing pipeline is important in two-dimensional graphics.	2	K2	CO2
14. Explain, in simple terms, one advantage of using matrix representations and homogeneous coordinates in geometric transformations.	2	K2	CO2
15. Explain the role of polygon tables in the representation of three-dimensional objects.	2	K2	CO3
16. List the advantages of using B-Spline surfaces over other surface representations in three-dimensional modelling.	2	K1	CO3
17. Name two basic illumination models used for representing light sources in computer graphics.	2	K1	CO4
18. Explain the advantages of using dithering techniques in computer graphics for colour representation.	2	K2	CO4

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| 19. | List the key elements involved in designing animation sequences. | 2 | K1 | CO5 |
| 20. | Explain the concept of raster animation and its application in computer graphics | 2 | K2 | CO5 |
| 21. | Illustrate the RGB colour model to represent a specific colour using its primary components. | 2 | K2 | CO4 |
| 22. | Illustrate the morphing in animation to seamlessly transform one image into another. | 2 | K2 | CO5 |

PART - C (6 × 11 = 66 Marks)

Answer ALL Questions

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| 23. | a) | Explain the concept of Output Primitives and provide examples of points and lines in computer graphics. | 11 | K2 | CO1 |
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| | b) | Explain how Pixel addressing contributes to the generation of graphics on a display device. | 11 | K2 | CO1 |
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| 24. | a) | Explain the fundamental purpose of homogeneous coordinates and provide an example in the context of two-dimensional geometric transformations. | 11 | K2 | CO2 |
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| | b) | Explain three components of a matrix representation used in two-dimensional geometric transformations. | 11 | K2 | CO2 |
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| 25. | a) | Explain the characteristics of Bezier curve with the control points, the order of continuity and blending function. | 11 | K2 | CO3 |
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| | b) | Explain the different types of 3D Viewing graphics. | 11 | K2 | CO3 |
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| 26. | a) | Explain HSV and HLS colour model. | 11 | K2 | CO4 |
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| | b) | Explain the purpose and application of halftone patterns and dithering techniques in computer graphics. | 11 | K2 | CO4 |
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| 27. | a) | Explain the components involved in the design of animation sequences. | 11 | K2 | CO5 |
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| | b) | Demonstrate the effectiveness of recursively defined curves in achieving realism in computer graphics. | 11 | K2 | CO5 |
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| 28. | a) | Apply the concept of polygon meshes to create a detailed three-dimensional object, considering its visual representation. | 11 | K3 | CO3 |
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| | b) | Construct a step-by-step process for implementing a composite transformation involving translation, rotation, and scaling in three-dimensional geometric modelling. | 11 | K3 | CO3 |
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