Reg. No.															

B.Tech. DEGREE EXAMINATION, MAY 2024

Sixth Semester

18CSE338J – COMPUTER GRAPHICS

(For the candidates admitted during the academic year 2018-2019 to 2021-2022)

Note:

(i) **Part - A** should be answered in OMR sheet within first 40 minutes and OMR sheet should be handed over to hall invigilator at the end of 40th minute.

(ii) **Part - B & Part - C** should be answered in answer booklet.

Time: 3 hours | Max. Marks: 100

PART – A (20 × 1 = 20 Marks)

Answer **ALL** Questions

	Marks	BL	CO	PO
1. What type of scan system does a standard computer monitor use? (A) Vector (B) Raster (C) Random (D) Sequential	1	1	2	1
2. DDA stands for _____ in computer graphics. (A) Direct drawing algorithm (B) Digital display architecture (C) Detailed drawing application (D) Digital differential analyzer	1	1	2	1
3. In Bresenham's line algorithm, _____ is mainly used to improve performance. (A) Floating point arithmetic (B) Integer arithmetic (C) Matrix transformation (D) Trigonometric function	1	1	2	1
4. The process of filling an area until a specified boundary color is encountered is known as _____. (A) Flood fill (B) Boundary fill (C) Scan line fill (D) Texture fill	1	1	2	1
5. Curve clipping is useful in dealing with _____. (A) Textures (B) 3D models (C) Bezier curves and splines (D) Color gradients	1	1	2	1
6. The process of removing parts of graphics outside a defined area is known as _____. (A) Scaling (B) Clipping (C) Rendering (D) Anti-aliasing	1	1	2	1
7. The process of transforming an objects coordinates to screen coordinates is known as _____. (A) World transformation (B) View port transformation (C) Perspective transformation (D) Orthographic transformation	1	1	2	1
8. Nicholl-Lee-Nicholl algorithm is used for _____. (A) Texture mapping (B) 3D transformations (C) Line clipping (D) Color blending	1	1	2	1

9. The projection technique which does not preserve angles and lengths is _____. 1 1 2 1

(A) Isometric (B) Axonometric
(C) Orthographic (D) Perspective

10. B-spline curves are preferred over Bezier curves for _____. 1 1 3 1

(A) Simplicity (B) Faster rendering
(C) Greater control and flexibility (D) Easier implementation

11. _____ is used for representing 3D objects in computer graphics. 1 1 2 1

(A) Polygon surfaces (B) Vector graphics
(C) Bitmaps (D) Pixel arrays

12. What does parallel projection in 3D viewing eliminate? 1 1 2 1

(A) Color (B) Perspective distortion
(C) Texture (D) Lighting effect

13. The A-buffer method manage _____ in computer graphics rendering. 1 1 2 1

(A) Transparency and anti-aliasing (B) Color gradients
(C) Data compression (D) Image scaling

14. In 3D viewing, what is the primary purpose of the viewing pipeline? 1 1 2 1

(A) To define object materials (B) To create animations
(C) To optimize network bandwidth (D) To transform a 3D scene into a 2D image

15. _____ aspect of a scene is altered by 3D clipping. 1 1 3 1

(A) Textures (B) Color palette
(C) Visible regions of the scene (D) Animation speed

16. Which method is widely used for visible surface detection in 3D graphics? 1 1 3 1

(A) Spline (B) Z buffer
(C) Dithering (D) Scanline

17. The color model CMY stand for 1 1 2 1

(A) Cyan, Magenta, Ytterbium (B) Cyan, Manganese, Yellow
(C) Cyan, Magenta, Yellow (D) Crimson, Maroon, Yttrium

18. HCS and HSV color models are used to _____. 1 1 2 1

(A) Facilitate intuitive color selection and manipulation (B) Reduce data sizes
(C) Increase the speed of rendering (D) Enhance resolution

19. In computer graphics, properties of light are important for _____. 1 1 2 1

(A) Animation sequencing (B) File compression
(C) Creating vector graphics (D) Shading and rendering

20. YIQ color model is primarily used due to its _____. 1 1 2 1

(A) High color accuracy (B) Compatibility with printers
(C) Efficiency in color broadcasting (D) Use in digital paintings

PART – B (5 × 4 = 20 Marks)

Answer **ANY FIVE** Questions

		Marks	BL	CO	PO
21.	Explain about the raster and random scan systems.	4	2	1	3
22.	Write the steps, discuss about mid point circle algorithm in generating pixel coordinates along a circular path.	4	2	1	2
23.	Illustrate the importance of point clipping in graphics processing.	4	2	1	1
24.	Describe the 2D viewing coordinate reference frame used in computer graphics.	4	2	1	1
25.	Explore the concept of polygon meshes in representing complex shapes and surfaces.	4	2	2	3
26.	Outline the steps of scan line method used in rendering images.	4	2	2	3
27.	Discuss the process of color selection.	4	2	3	1

PART – C (5 × 12 = 60 Marks)

Answer **ALL** Questions

		Marks	BL	CO	PO
28. a.	Describe how to implement boundary fill and flood fill algorithm a drawing application that allow users to fill areas with colors.	12	3	1	1
	(OR)				
b.	Explain the role of computer graphics in modern application and industries.	12	3	1	1
29. a.	Describe how geometric transformation are represented using matrices and homogeneous coordinated in computer graphics.	12	3	1	2
	(OR)				
b.	Explain the key features of Cohen-Sutherland line clipping algorithm and discuss how it efficiently determines whether a line segment lies entirely, partially in a rectangular clipping window.	12	3	1	1
30. a.	Explain the visual effects produced by parallel and perspective projection method in 3D scenes.	12	2	2	2
	(OR)				
b.	Explain the process of defining and manipulating Beizer curves and surfaces to achieve desired design outcomes in 3D modeling applications.	12	2	2	3
31. a.	How do different depth buffering method in computer graphics impact the rendering process in real time graphics application?	12	3	2	3
	(OR)				

b.	Discuss the viewing pipeline focusing on the transformation from world to viewing coordinates. Also elaborate on how viewing coordinates shape object perspective and orientation in 3D computer graphics.	12	4	3	3
32. a.	How do different polygon rendering methods impact the visual quality of computer generated images, and what factors influence with selection of a specific shading technique in a rendering pipeline?	12	3	3	3
	(OR)				
b.	Write the properties of light influence the rendering process and enhance the realism of rendered images in computer graphics.	12	3	3	1

* * * * *