QPC: RJ20BCA059 AY 21/AY 22 Reg. No | | | | | | | | | | |

GIET UNIVERSITY, GUNUPUR – 765022

B. C. A (Third Semester) Examinations, January 2024

BCA20303 - Computer Graphics and Multimedia

Time: 3 hrs Maximum: 70 Marks

The figures in the right hand margin indicate marks.

PART – A: (Multiple Choice Questions) **(1 x 10 = 10 Marks)**

Q. 1 Answer ***ALL*** questions

		CO #	PO #
a.	Which of the following is the purpose for using clipping in computer graphics? (i) copying (ii) removing objects and lines (iii) adding graphics (iv) zooming	CO2	PO1
b.	____ is the smallest addressable screen element. (i) dots (ii) points (iii) pixels (iv) spot	CO1	PO1
c.	Bitmap is a collection of _____ that describes an image. (i) bits (ii) colours (iii) algorithms (iv) pixels	CO1	PO1
d.	In LCD, the refresh rate of the screen is (i) 60 frames/sec (ii) 80 frames/sec (ii) 100 frames/sec (iv) 30 frames/sec	CO1	PO1
e.	Heat supplied to the cathode by directing a current through a coil of wire is called as (i) Electron beam (ii) Anode and cathode (iii) Filament (iv) Electron gun	CO1	PO1
f.	Which of the following is a primary output device of a graphics system? (i) Video monitor (ii) Printer (iii) Scanner (iv) Neither Scanner nor Video monitor	CO1	PO1
g.	What are Blobby Objects in computer graphics primarily used for? (i) Representing geometrically complex surfaces (ii) Efficiently storing and retrieving 3D models (iii) Simulating fluid dynamics in animations (iv) Real-time rendering of photorealistic scenes	CO3	PO1
h.	In computer graphics, what is a characteristic feature of Bezier curves? (i) They have a fixed shape and cannot be modified. (ii) They are exclusively used for 3D graphics. (iii) They can only represent straight lines. (iv) They are defined by a set of control points.	CO3	PO1
i.	Which of the following transformations is NOT typically used in 3D computer graphics? (i) Scaling (ii) Shearing (iii) Rotation (iv) Reflection	CO4	PO1
j.	Which of the following transformation matrices is used for scaling along the x, y, and z axes in 3D space? (i) Translation matrix (ii) Shearing matrix (iii) Rotation matrix (iv) Scaling matrix	CO4	PO1

PART – B: (Short Answer Questions) **(2 x 10 = 20 Marks)**

Q.2. Answer ***ALL*** questions	CO #	PO #
a. What is computer graphics?	CO1	PO1
b. Explain the types of computer graphics.	CO1	PO1
c. What is Auto CAD?	CO1	PO1
d. What is clipping window?	CO2	PO1
e. Explain 4 cases of Sutherland Hodgeman Polygon clipping.	CO2	PO1
f. Write the disadvantage of DDA line drawing algorithm.	CO2	PO1
g. Explain 2D Shearing.	**CO3**	PO1
h. What is Implicit Curves?	**CO3**	PO1
i. Write the matrix representation for 2D Reflection.	**CO3**	PO1
j. Write the polynomial representation for 3D rotation.	**CO4**	PO1

PART – C: (Long Answer Questions) **(10 x 4 = 40 Marks)**

Answer ***ALL*** questions	CO #	PO #
3.*a.* Explain the Components of CRT.	CO1	PO1
b. Differentiate between Vector scan display and Raster scan display	CO1	PO2
(OR)		
c. Explain the Architecture of a raster scan display.	CO1	PO1
d. Describe any five applications of computer graphics.	CO1	PO1
4.*a.* Discuss about Cohen-Sutherland line clipping.	CO2	PO1
b. Find the points on the Circumference of circle where centre is at Origin having a radius of 12 using Mid-Point's Algorithm.	CO2	PO2
(OR)		
c. Use the Cohen Sutherland algorithm to clip two lines P1(10,30)-P2(80,90) and P3(30,40)-P4(100,80) against a window A(20,20),B(90,20),C(90,70),D(20,70).	CO2	PO2
d. Write short note on Line Drawing Algorithms.	CO2	PO1
5.*a.* Discuss Polygon mesh with different represented methods.	CO3	PO1
b. Design a Bezier Curve controlled by 4 point A(1,1),B(2,3),C(4,3),D(6,4).	CO3	PO1
(OR)		
c. Write short notes on Polygon Table.	CO3	PO2
d. Explain the properties of B-spline Curves.	CO3	PO1
6.*a* Scale an object given as A(0,2,3),B(2,3,5),C(1,3,2) to twice its size by keeping c	CO4	PO2

constant by using composite 3D transformation where T(1,3,2).

b. Write short notes: CO4 PO2

(i) 3D- Translation

(ii) 3D- Rotation

(OR)

c. Find out a scaled polygon by applying the scaling parameter 2 towards X-Axis , 3 towards Y-axis and 3 towards Z-axis the polygon vertex are A(0,3,3) B(3,3,6) C(0,0,1) D(0,0,0). CO4 PO1

d. Translate the triangle A(1,1,1) B(2,2,2) C(3,-1,3) and rotate it by 90^0. CO4 PO2

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