QP Code: RN23BCA021 | Reg. No | | | | | | | | | | | AY 23

GANDHI INSTITUTE OF ENGINEERING AND TECHNOLOGY UNIVERSITY, ODISHA, GUNUPUR
(GIET UNIVERSITY)

B.C.A (Third Semester) Regular Examinations, November – 2024

BCA23303 – Computer Graphics

(BCA)

Time: 3hrs | Maximum: 60 Marks

(The figures in the right hand margin indicate marks)

PART – A **(2 x 5 = 10 Marks)**

Q.1. Answer ***ALL*** questions	CO #	Blooms Level
a. Define Computer Graphics.	CO1	K1
b. Explain the need of Deflection Amplifier in CRT Display.	CO2	K2
c. Define line clipping and explain the segments of line.	CO3	K2
d. Explain 2D Transformation.	CO4	K1
e. Write the polynomial representation for 3D translation.	CO5	K2

PART – B **(10 x5=50 Marks)**

Answer ***ALL*** questions	Marks	CO #	Blooms Level
2. a. Discuss the key components of a computer graphics system.	5	CO1	K2
b. Describe the functions of any five graphics input devices and their roles in computer graphics applications.	5	CO1	K2
(OR)			
c. Write short note on: i. Data Glove ii. Plotters.	5	CO1	K2
d. Explain the fundamental concept of computer graphics with the advantages.	5	CO1	K2
3.a. Explain the working principle of a Cathode-Ray Tube (CRT) display and its components.	5	CO2	K3
b. Explain Raster scan display, with the help of a net diagram.	5	CO2	K2
(OR)			
c. Discuss the basic operation, Components and advantages of Plasma Panel Displays with a net diagram.	5	CO2	K3
d. Differentiate between Stroke–writing scan display and Bitmap scan display.	5	CO2	K2
4.a. Consider the line from (20, 10) to (30, 18).Use the Bresenham's line drawing algorithm find the points.	6	CO3	K3
b. Write a short note on i. Clipping Algorithm. ii. Scan Conversion of Circle	4	CO3	K2
(OR)			

c.	Consider the line from (1, 7) to (11, 17).Use DDA algorithm to raster size this line.	5	CO3	K2
d.	Find the points on the Circumference of circle where centre is at Origin having a radius of 15 using Mid-Point's Algorithm.	5	CO3	K3
5.a.	A(1,1),B(1,2),C(2,2),D(2,1) are the vertices of unit square ,find out sheared object with shearing factor 3 in X-Direction ,Y-direction.	5	CO4	K3
b.	What is 2D Reflection? Explain with an example.	5	CO4	K3
	(OR)			
c.	A triangle has vertices at points A (3, 4), B (5, 6) and C (7, 3). Apply a translation defined by vector T1 (4, −3) to each of the vertices of the triangle. After the first translation, apply a second translation defined by vector T2 (−5, 4) to the new coordinates of each vertex. What are the final coordinates of points A, B, and C after both translations?	5	CO4	K3
d.	Make the size of the object double controlled by 4 point A (2, 2), B (2, 6), C (4, 6), D (4, 2) S.F=2 by using 2D-scaling.	5	CO4	K3
6.a.	Find out the X-shear, Y-shear, Z-shear to the given coordinates with the unit(Sh=3) Where A(0,0,0), B(0,1,0), C(1,1,0), D(1,0,0) by using 3D-Shearing.	6	CO5	K3
b.	Write short notes: i. 3D- Transformation ii. 3D- Translation	4	CO5	K2
	(OR)			
c.	What is 3D Shear? Explain with an example.	5	CO5	K2
d.	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).	5	CO5	K3

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