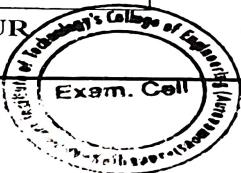


**KOLHAPUR INSTITUTE OF TECHNOLOGY'S,
COLLEGE OF ENGINEERING (AUTONOMOUS), KOLHAPUR
(AFFILIATED TO SHIVAJI UNIVERSITY, KOLHAPUR)**

DM27\



**S.Y.B.Tech. (Computer Science & Engineering)
(Semester- IV)**

MAKEUP EXAMINATION, AUGUST- 2022

Course Code : UCSE0402

Course Name : Computer Graphics

Day and Date : Wednesday , 24-Aug-22

PRN : _____

Time : 02:00 PM To 05:00 PM

Max Marks: 100

Instructions:

IMP: Verify that you have received question paper with correct course, code, branch etc.

- i) All questions are compulsory.
- ii) Figure to the right indicate full marks.
- iii) Assume suitable data wherever necessary.

	Marks	B.L	CO's
Q.1 Attempt any two	16		
A Derive the transformation matrix for rotating the object about an arbitrary axis in space.	3	CO2	
B Explain seed fill algorithm with suitable example using stack.	2	CO2	
C Describe the working of Raster Refresh Display device.	2	CO1	
Q.2 Attempt any two	16		
A Rasterize the line between the end points (0,0) to (-6,-3) using Bresenham's algorithm.	5	CO2	
B What are different criteria's used by bresenham's circle generation algorithm to select the appropriate pixel which best represents the actual circle.	2	CO2	
C Explain the working of Liquid Crystal Display device.	2	CO1	
Q.3 Attempt any three	18		
A Explain midpoint subdivision algorithm for line clipping.	2	CO3	
B Write a note on axonometric projections.	2	CO3	
C Explain Parametric representation of cubic spline curve?	2	CO3	
D Describe specular reflection model for calculating surface intensity at a given point	2	CO4	

Q.4 Attempt any two

16

- A** Consider the clipping window $XL=-1$, $XR=+1$, $YB=-1$ and $YT=+1$ and the line from $P1(-3/2, -1)$ to $P2(3/2, 2)$. Clip the line using end point code algorithm. 5 CO3

B Explain Z-buffer algorithm. State advantages and disadvantages 2 CO3

C Describe halftoning method for displaying continuous images in computer graphics. 2 CO4

Q.5 Attempt any two

16

- A** Give the properties of B-spline and Bezier curves 2 CO3

B Explain the ordered-dither halftoning method to generate different intensity variations. 2 CO4

C Illustrate with example Sutherland cohen subdivision algorithm for line clipping. 3 CO3

Q.6 Attempt any three

18



KOLHAPUR INSTITUTE OF TECHNOLOGY'S,
COLLEGE OF ENGINEERING (AUTONOMOUS), KOLHAPUR
(AFFILIATED TO SHIVAJI UNIVERSITY, KOLHAPUR)

S.Y.B.Tech. (Computer Science & Engineering)

(Semester- IV)

END SEMESTER EXAMINATION, MAY- 2022

Course Code : UCSE0402

Course Name : Computer Graphics

Day and Date : Thursday, 26/05/2022

PRN :

Time : 09:30 AM To 12:30 PM

Max Marks: 100

Instructions:

IMP: Verify that you have received question paper with correct course, code, branch etc.

- i) All questions are compulsory.
- ii) Figure to the right indicate full marks.
- iii) Assume suitable data wherever necessary.

		Mark s	B.L s	CO s
Q.1	Attempt any Two	16		
A	Explain the working principle of raster refresh graphics display. Draw a neat diagram.	8	1	1
B	Elaborate Bresenham's Circle algorithm in detail with an example.	8	2	2
C	Explain the concept of homogeneous coordinate system and translation of an object with suitable example.	8	2	2
Q.2	Attempt any two	16		
A	A straight line (1,1) to (10,1) is rotated by an angle 90 degree in anticlockwise about pt.(1,1) Write and explain above transformation with matrices.	8	5	2
B	Describe the working of pen and ink plotter in detail.	8	1	1
C	Differentiate in between Edge Fill and Seed Fill Algorithm.	8	4	2
Q.3	Attempt any two	16		
A	Consider the clipping window with $X_l=-1, X_r=+1, Y_b=-1$ and $Y_t=+1$ and the line from $P_1=(-3/2, 1/6)$ to $P_2=(1/2, 3/2)$. Find the intersection of the line with edges of the clipping window.	8	5	2
B	Describe anti-aliased ray tracing algorithm.	8	2	4
C	List and explain the characteristics of B-spline curve.	8	2	3

Q.4	Attempt any two	16		
A	Discuss Sutherland-Cohen subdivision clipping algorithm with suitable example.	8	2	2
B	Explain in detail parametric and non-parametric curves	8	2	3
C	Write the details of cubic spline with its application.	8	2	3
Q.5	Attempt any three	18		
A	State and explain basic ray tracing algorithm.	6	2	4
B	Describe parametric equation of parabolic blended curve.	6	2	3
C	Explain the flat shading method for rendering a polygon.	6	3	4
D	Illustrate specular reflection model for calculating surface intensity at a given point.	6	2	4
Q.6	Write a short note on any three	18		
A	Bezier Curve	6	2	3
B	Window to view porting	6	2	2
C	Gouraud shading method for rendering a polygon.	6	2	4
D	Warnock algorithm	6	2	3



**KOLHAPUR INSTITUTE OF TECHNOLOGY'S,
COLLEGE OF ENGINEERING (AUTONOMOUS), KOLHAPUR
(AFFILIATED TO SHIVAJI UNIVERSITY, KOLHAPUR)**

**S.Y. B.Tech. (Computer Science and Engineering)
(Semester- IV)**

MID SEMESTER EXAMINATION, MARCH- 2022

Course Code : UCSE0402

Course Name : Computer Graphics

Day and Date : Sunday , 20-Mar-22

PRN :

Time : 09:30 AM To 11:30 AM

Max Marks: 50

Instructions:

IMP: Verify that you have received question paper with correct course, code, branch etc.

- i) All questions are compulsory.
- ii) Figure to the right indicate full marks.
- iii) Assume suitable data wherever necessary.

	Marks	B.L	CO's
Q.1 Attempt any three	18		
A Derive the transformation matrix for rotation of object through arbitrary angle in both the directions.	III	CO2	
B Evaluate Bresenham's circle generation algorithm for radius=5 units and center coordinates (10, 5).	III	CO2	
C Explain 24 bit plane frame buffer with lookup table.	II	CO1	
D What are plane geometric projections? Explain orthographic projections in detail.	I	CO2	
 Q.2 Attempt any two	 16		
A Describe with the help of transformation matrix the procedure to obtain rotation about an arbitrary axis in space.	II	CO2	
B Evaluate Bresenham's line drawing algorithm for line (0,0) to (-5,5).	III	CO2	
C Explain the working of following types of input devices: a. Joystick b. Tablet	I	CO1	

Q.3 Attempt any two

16

A A rectangle is represented by coordinates A(0,0), B(20,0), C(20,30) and D(0,30). Write and explain steps that are occurring in transformation to change the square coordinates to A'(10,10), B'(20,10), C'(20,20) and D'(10,20).

III CO2

B Explain the working of Color CRT display device.

I CO1

C Write a note on RLE.

I CO2



S.Y.B.Tech.(Computer Science & Engineering) (Sem- IV)
MID SEMESTER EXAMINATION, MARCH-2020
Computer Graphics (UCSE0402)

Day and Date: Wednesday, 04/03/2020
Time: 10:00 AM to 12:00 Noon

PEN No.:

Max Marks- 50

INSTRUCTIONS:

IMP: Verify that you have received question paper with correct course, code, branch etc.

- i) All questions are compulsory.
- ii) Figures to the right indicate full marks.
- iii) Assume suitable data wherever necessary.

	Marks	B.L	CO's
Q.1 Attempt any three.	18		
A Classify different hard copy devices	6	2	CO1
B Write note on: Graphics monitors and workstations.	6	2	CO1
C Illustrate the concept of 2D rotation about an arbitrary point with appropriate example.	6	2	CO2
D Explain Run length encoding method with respect to scan conversion.	6	2	CO2
Q.2 Attempt any two.	16		
A Distinguish between beam penetration and shadow mask method with respect to color CRT monitors.	8	4	CO1
B Discuss following 2D transformations: i) Translation ii) Rotation	8	3	CO2
Find the transformation of triangle A(1,0), B(0, 1), C(1, 1) by rotating 60 degree about the origin and then translating 2, 3 units in x and y directions respectively.			
C Explain Integer Bresenham Line Drawing Algorithm and show how Integer Bresenham's line algorithm draws a line that starts with (5, 8) and end with (9, 11).	8	2	CO2
Q.3 Attempt any two.	16		
A What are the different video display devices? Explain (any one) its working in detail.	8	2	CO1
B What is the advantage of using homogeneous coordinates? Illustrate 3D transformations with respect to homogeneous coordinates	8	2	CO2
C Summarize Bresenham circle generation algorithm. Make use of Bresenham circle generation algorithm and write iterations to draw a circle having centre (0, 0) and radius 5.	8	3	CO2



S.Y.B.Tech.(Computer Science & Engineering) (Sem- IV)
MID SEMESTER EXAMINATION, MARCH-2020
Computer Graphics (UCSE0402)

Day and Date: Wednesday, 04/03/2020
Time: 10:00 AM to 12:00 Noon

PRN No.:
Max Marks- 50

Instructions:

- IMP:** Verify that you have received question paper with correct course, code, branch etc.
i) All questions are compulsory.
ii) Figure to the right indicate full marks.
iii) Assume suitable data wherever necessary.

	Marks	B.L	CO's
Q.1 Attempt any three.	18		
A Classify different hard copy devices	6	2	CO1
B Write note on: Graphics monitors and workstations.	6	2	CO1
C Illustrate the concept of 2D rotation about an arbitrary point with appropriate example.	6	2	CO2
D Explain Run length encoding method with respect to scan conversion.	6	2	CO2
Q.2 Attempt any two.	16		
A Distinguish between beam penetration and shadow mask method with respect to color CRT monitors.	8	4	CO1
B Discuss following 2D transformations: i) Translation ii) Rotation Find the transformation of triangle A(1,0), B(0, 1), C(1, 1) by rotating 60 degree about the origin and then translating 2, 3 units in x and y directions respectively.	8	3	CO2
C Explain Integer Bresenham Line Drawing Algorithm and show how Integer Bresenham's line algorithm draws a line that starts with (5, 8) and end with (9, 11).	8	2	CO2
Q.3 Attempt any two.	16		
A What are the different video display devices? Explain (any one) its working in detail.	8	2	CO1
B What is the advantage of using homogeneous coordinates? Illustrate 3D transformations with respect to homogeneous coordinates	8	2	CO2
C Summarize Bresenham circle generation algorithm. Make use of Bresenham circle generation algorithm and write iterationsto draw a circle having centre (0, 0) and radius5.	8	3	CO2



S. Y. B.Tech. (Computer Science & Engineering) (Sem-IV)
MAKEUP EXAMINATION, JANUARY- 2020

Computer Graphics (UCSE0402)

Day and Date: Wednesday, 08/01/2020

PRN No. :

Time: 09:30 AM to 12:30 PM

Max. Marks- 100

Instructions:

IMP: Verify that you have received question paper with correct course, code, branch etc.

- i) All questions are compulsory.
- ii) Figure to the right indicate full marks.
- iii) Assume suitable data wherever necessary.

	Marks	B.L	CO's
Q.1 Attempt any Two	16		
A What are the applications of computer graphics	1	1	
B Explain the working of Refresh Cathode-Ray Tubes	2	1	
C Explain Raster and Random scan Display Devices in detail.	2	1	
Q.2 Attempt any two	16		
A Explain Cohen-Sutherland line clipping algorithm.	2	4	
B Explain in basic transformations of 2D object	2	2	
C Evaluate Bresenham's Line drawing algorithm for line (0,0) to (5,5).	5	3	
Q.3 Attempt any three	18		
A Explain Window to viewport Transformation	2	4	
B Explain general transformation matrix for 3D rotation about the origin by an arbitrary angle θ .	2	2	
C Explain Parametric and Non parametric representation of the curve.	2	5	
D Write short note on ray tracing method	1	6	
Q.4 Attempt any two	16		
A Explain the Bresenham's circle generation algorithm	2	3	
B Explain the convex hull property of B-spline Curve	2	5	
C Explain Run Length Encoding technique.	1	3	
Q.5 Attempt any two	16		
A Explain Warnock algorithm with example	2	5	
B Explain Edge fill algorithm with example	2	3	
C Explain Various types of light sources?	2	6	
Q.6 Attempt any three	18		
A Explain anti aliasing.	2	3	
B Explain Z-buffer algorithm. State advantages and disadvantages	2	5	
C Write a note on point Clipping.	1	4	
D Explain the Properties of Bezier Curves?	2	5	



KOLHAPUR INSTITUTE OF TECHNOLOGY'S,
COLLEGE OF ENGINEERING AUTONOMOUS, KOLHAPUR
(AFFILIATED TO SHIVAJI UNIVERSITY, KOLHAPUR)

SUMMER

S. Y. B.Tech. (Computer Science & Engineering) (Semester-IV)
SUMMER EXAMINATION, JULY -2019

Computer Graphics (UCSE0402)

Day and Date: Monday, 22/07/2019
Time: 10:00 AM to 01:00 PM

PRN No. :
Max. Marks- 100

Instructions:

IMP: Verify that you have received question paper with correct course, code, branch etc.

- i) All questions are compulsory.
- ii) Figure to the right indicates full marks.
- iii) Assume suitable data wherever necessary.

	Marks	B.L	CO's
Q.1 Attempt any two	16		
A Explain raster scan display devices		II	1
B Discuss the design of CRT		VI	1
C List application of Computer Graphics		I	1
Q.2 Attempt any two	16		2
A Explain orthographic projection		II	2
B Define 2D rotation and explain rotation in an arbitrary space		I	2
C Explain shearing and reflection about origin with suitable example		II	
Q.3 Attempt any three	18		
A Explain run length encoding and frame buffer		II	3
B Explain seed fill algorithm with stack		II	3
C Explain ant-aliasing		II	3
D Explain line drawing algorithm		II	3
Q.4 Attempt any two	16		4
A With example explain midpoint subdivision algorithm		II	4
B Explain Cohen Sutherland Line Clipping Algorithm		II	4
C Explain windowing and view porting		II	4
Q.5 Attempt any two	16		5
A Explain Z Buffer algorithm		II	5
B Explain Bezier curves		II	5
C Explain Warnock algorithm		II	5
Q.6 Attempt any three	18		6
A Explain dithering techniques		II	6
B Explain different light sources		II	6
C Explain ray tracing methods		II	6
D List different illumination models		I	6



**Second Year B.Tech. (Computer Science & Engineering)
END SEMESTER EXAMINATION, MAY 2019**

Computer Graphics (UCSE0402)

Day and Date: Thursday, 09/05/2019
Time: 10:00 AM to 01:00 PM

PRN No:

Max. Marks- 100

Instructions

IMP: Verify that you have received question paper with correct course, code, branch etc.

- i) All questions are compulsory.
- ii) Figure to the right indicate full marks.
- iii) Assume suitable data wherever necessary.

	Marks	Blooms Level	CO's
Q.1 Attempt any Two	16		
A Explain the working of Refresh Cathode-Ray Tubes		II	1
B What is scaling? Explain 2D and 3D scaling transformation.		II	2
C Explain Run Length Encoding technique.		I,II	3
Q.2 Attempt any two	16		
A Explain Raster and Random scan Display Devices in detail.		II	1
B Explain in basic transformations of 2D object		II	2
C Evaluate Bresenham's Line drawing algorithm for line (0,0) to (5,5).		V	3
Q.3 Attempt any two	16		
A Explain Window to viewport Transformation		II	4
B How end point codes are used in the line clipping algorithm. Explain with example?		I,II	4
C Explain Simple Visibility Algorithm.		II	4
Q.4 Attempt any two	16		
A Explain the Warnock algorithm with example?		II	5
B Given B0[1,1], B1[2, 3], B2[4 ,3], B3[3, 1] the Vertices of a Bezier polygon, determine points on the curve for u=0, 0.4 ,0.8 ,1.		V	5
C Explain Parametric and non parametric equation of curve?		II	5

Q.5 Attempt any two

- A Explain the ordered-dither half-toning method to generate different intensity variations **18**
- B Explain diffuse reflection model for calculating surface intensity at a given point. **II** **6**
- C Explain Edge fill algorithm with example **II** **3**

Q.6 Attempt any three

- A Write a note on point Clipping. **18** **I** **4**
- B Explain different light sources **II** **6**
- C Explain the Properties of Bezier Curves? **II** **5**
- D Explain anti aliasing. **II** **3**



S. Y. B.Tech. (Computer Science and Engineering)
MID SEMESTER EXAMINATION, MARCH 2019
Computer Graphics (UCSE0402)

Day and Date: Thursday, 07/03/2019

PRN No. :

Time: 12:15 PM to 02:15 PM

Max Marks- 50

Instructions:

IMP: Verify that you have received question paper with correct course, code, branch etc.

- i) All questions are compulsory.
- ii) Figure to the right indicate full marks.
- iii) Assume suitable data wherever necessary.

	Marks	Blooms Level	CO's
Q.1 Attempt any three	18	I	1
A Explain the working of electrostatic deflection of the electron beam in CRT			
B Explain with the help of diagram Raster scan displays			
C Explain the working of plasma panel display device			
D Explain the working of liquid crystal display device			
Q.2 Attempt any two	16	I,III	1
A Explain reflection through an arbitrary line. Explain 3D scaling.			
B Explain scaling in 2D. Given a triangle with vertices A= (4, 2), B= (4, 4) and C= (2, 4). Apply the scaling of 3 units in x and y direction and perform the scaling on the given triangle			
C Explain 2D rotation in an arbitrary angle			
Q.3 Attempt any two	16	I	2
A Explain midpoint subdivision algorithm for line clipping with example.	8		
B Explain Cohen Sutherland line clipping algorithm with example	8		
C How end point codes are used in line clipping algorithm. Explain with example			
