PRESIDENCY UNIVERSITY
BENGALURU

SCHOOL OF ENGINEERING
END TERM EXAMINATION - JAN 2023

Semester : Semester III - 2021
Course Code : CSE2066
Course Name : Sem III - CSE2066 - Computer Graphics
Program : B.Tech. CBC/CCS/CSD/CDV/CIT/CSE/CSG/ISE/IST

Date : 17-JAN-2023
Time : 1.00PM - 4.00PM
Max Marks : 100
Weightage : 50%

Instructions:
(i) Read all questions carefully and answer accordingly.
(ii) Question paper consists of 3 parts.
(iii) Scientific and non-programmable calculator are permitted.

PART A

ANSWER ALL THE TEN QUESTIONS   **10 X 2 = 20M**

1. Define emissive and non-emissive displays. List example for each.

                                                                (CO1) [Knowledge]

2. List the drawbacks of Beam penetration method

                                                                (CO1) [Knowledge]

3. DDA is a line drawing algorithm but why it is not an efficient line drawing algorithm?

                                                                (CO1) [Knowledge]

4. Draw the block diagram for 2D viewing pipeline.

                                                                (CO2) [Knowledge]

5. How to overcome the drawbacks of Cohen-Sutherland's line clipping algorithm using Liang-Barsky line clipping algorithm.

                                                                (CO2) [Knowledge]

6. What is oblique projection? Write the matrix for obligue projection

                                                                (CO3) [Knowledge]

7. Cubic polynomials are suitable for curve representation, why?

                                                                (CO4) [Knowledge]

8. Define anyone 3D input device and draw its diagram.

                                                                (CO1) [Knowledge]

9. Define clipping and its types.

                                                                (CO2) [Knowledge]

10. If M1, M2 and M3 are the sequence of transformation applied on the point P(x,y) to place it in new position P'(x',y'). Write the matrix operations involved in these sequence of transformations

(CO2) [Knowledge]

PART B

ANSWER ALL THE FIVE QUESTIONS   **5 X 10 = 50M**

11. Define computer graphics. List and explain its applications.

(CO1) [Comprehension]

12. Answer the following Questions:
    a).Explain 2D rotation steps about a pivot point with a neat diagram
    b). Explain 2D composite transformation matrix for a point.

(CO2) [Comprehension]

13. Answer the following questions:
    A).With neat diagram explain Orthographic Projection.
    B). List its advantages and disadvantages.
    C). Distinguish orthographic projection with oblique projection

(CO3) [Comprehension]

14. Answer the following questions:
    A).Describe 2D viewing pipeline architecture in detail.
    B). Distinguish between Parallel and perspective projection.

(CO2,CO3) [Comprehension]

15. Answer the following question:
    a). Define curve. Explain the parametric representation of quadric surfaces with neat diagram
    b).What is conic section? Give the general conic equation for following geometric objects.
    i). Circle
    ii). Ellipse
    iii). Parabola
    iv). hyperbola

(CO4) [Comprehension]

PART C

ANSWER ALL THE TWO QUESTIONS   **2 X 15 = 30M**

16. Answer the following questions:
    a). Take the closed polygon defined by the points:
    (50, 150), (200, 50), (350, 150), (350, 300), (250, 300), (200, 250), (150, 350), (100, 250), (100, 200)
    and clip it by the rectangle defined by the points:(100, 100), (300, 100), (300, 300), (100, 300)
    Write the sequence of points that define the resulting clipped polygon.
    b). Write a note on Hardware output devices with suitable examples.

(CO2,CO1) [Application]

17. Answer the following:
    A). Write the steps for Bresenham's circle drawing algorithm
    B). Use the Cohen Sutherland algorithm steps to clip two lines P1(35,10)- P2(65,40) and P3(65,20)-P4(95,10) against a window A(50,10), B(80,10), C(80,40) and D(50,40).

*****   (CO1,CO2) [Application]