 **ST. JOSEPH’S COLLEGE (AUTONOMOUS), BANGALORE -27**

Register Number:

Date: 16-12-2022 ( 9am )

**BCA V SEMESTER**

**SEMESTER EXAMINATION: October 2022**

(Examination conducted December 2022)

**CA 5318 – Computer Graphics and Multimedia**

**Time: 2 ½ Hrs. Max Marks - 70**

**This Paper question paper contains 2 printed pages and three parts**

**Part – A**

**I Answer all the questions 2x10=20**

1. Discuss Interactive and Non – Interactive Graphics with an appropriate example.
2. Define:
   1. Viewport
   2. Bit Map
3. Mention any two differences between inter-frame and intra-frame compression.
4. What are two guns used in DVST? Mention their functions.
5. How to represent 3-D Rotation Matrix on Z-axis.
6. What is Hypermedia? Give an example.
7. With a neat diagram depict the Cartesian Plane Quadrants of a graph.
8. Abbreviate DDA and mention its advantages.
9. Given lower left corner of the window (1,1) upper right corner of the window (3,5) lower left corner of the viewport (0,0) and upper right corner of the viewport (0.5, 0.5), Find Sx and Sy.
10. Mention any two Hidden Surface detection algorithms.

**Part – B**

**Answer any Five of the following 6x5=30**

1. With a neat labelled diagram analyze the working of a Shadow mask CRT.
2. What is MIDI? What are its applications?
3. What is Rasterization? Explain in brief about Raster Scan Display.
4. Give the syntax of drawing in Circle in Computer Graphics using any one fundamental algorithm.
5. What is Reflection? Give the matrix representation for the following:
   1. Reflection about x-axis.
   2. Reflection about an axis perpendicular to xy plane and passing through the origin.
   3. Reflection about line x=y.
6. Write the algorithm for Depth Buffer for determining visible surface.
7. Write a program to demonstrate the working of Bresenham’s Line Drawing algorithm.

**Part – C**

**III Answer any two of the following 10x2=20**

18.a) Perform mapping from Window to Viewport transformation (5)

* 1. Write a note on MPEG and its Compression Standards (5)

19. a) What is Projection? Distinguish between Parallel and Perspective Projection (6)

b) Write a program to demonstrate flood fill algorithm (4)

20.a) Use Cohen Sutherland Line Clipping Algorithm to find the visible portion of the line P (40,80), Q(120,30) inside the window, the window is defined as ABCD: A(20,20), B(60,20),C(60,40) and D(20,40) (6)

b) Define the following Animation techniques (4)

* + 1. Traditional Animation
    2. Key Frame
    3. Morphing.