Cluster Innovation Centre

End Semester Examination – Dec-Jan 2023-24

Name of the Course :B. Tech. IT&MI
Name of the Paper: Computer Graphics and Visualization
Paper Code: 32861502
Semester: V
Duration: 2 hours
Maximum Marks: 40
Instructions to the candidates:

- **Q1, Q2, Q3 are compulsory.**
- **Attempt any one question out of Q4 and Q5.**

---

1. **(5x2=10 Marks)**

   a. What are the applications of computer graphics?

   b. Explain about the display technologies?

   c. What are inverse geometric transformations?

   d. What is clipping? Explain some uses of clipping.

   e. How does CRT work in computer graphics?

2. **(4x2.5=10 Marks)**

   a. Perform a 45^0 rotation of triangle A(0,0), B(1,1), C(5,2) about P(-1,-1).

   b. Check whether two surfaces of an object with normal (2i - 3j + 4k) and (i + j - 2k) are viewed from a direction given by (i - j + k) are back face or front face ?

   c. Given a triangle with points (1, 1), (0, 0) and (1, 0).Find out the new coordinates of the object along x-axis, y-axis.(Applying shear parameter 4 on X-axis and 1 on Y-axis).

   d. Using the DDA line drawing algorithm, generate the points between the endpoints (6,9) and (11,19).

3. Write bresenham's circle drawing algorithm. Draw circle centered at (0,0) with radius 10 using this algorithm. **(10 Marks)**

   OR

   Drive a mid-point ellipse drawing algorithm.

4. Differentiate between the following: **(4x2.5=10 Marks)**

   a. Raster and vector graphics

   b. Gouraud And Phong Shading

   c. z buffer and a buffer

   d. Parallel and Perspective Projection

5. Write Short note on the following : **(4x2.5=10 Marks)**

   a. Seed Fill Algorithms
   b. 3D Cohen – Sutherland Line Clipping
   c. Bezier Curves
   d. Interlacing Technique