24 TRIBHUVAN UNIVERSITY
INSTITUTE OF ENGINEERING
Examination Control Division
2075 Ashwin

Exam.	Back		
Level	BE	Full Marks	80
Programme	BEX, BCT	Pass Marks	32
Year / Part	III / I	Time	3 hrs.

Subject: - Computer Graphics *(EX603)*

- ✓ Candidates are required to give their answers in their own words as far as practicable.
- ✓ *Attempt **All** questions.*
- ✓ *The figures in the margin indicate **Full Marks**.*
- ✓ *Assume suitable data if necessary.*

1. Compare random and raster display technology. [6]
2. How symmetry property of circle reduces omplexity to draw a complete circle. Derive decision parameter for midpoint circle algorithm assuming the start position as (-r, 0) points are to be generated along the curve path in counter clockwise direction. [3+7]
3. Use Liang Barsky line clipping algorithm to clip a line starting from (6,100) and ending at (60, 5) against the window having its lower left corner at (10, 10) and upper right corner at (90, 90). [8]
4. Reflect the triangle ABC about the line 3X-4Y+8=0 the position Vector of coordinate ABC as A(4, 1), B(5, 2) and C(4, 3). [8]
5. Develop the Matrix to transform an object from Three-Dimensional World Coordinate to Viewing Coordinate system. A unit length cube with diagonal passing through (0, 0, 0) and (2, 2, 2) is shared with respect to ZX-plane with share Constants = 3 in both directions. Obtain the final coordinates of the cube after shearing. [5+7]
6. Do you agree Polygon Descriptions are referred to as "Standard Graphics Object", If yes, Why? If you have three coordinates (X1, Y1, Z1), (X2, Y2, Z2) and (X3, Y3, Z3), then how do you find the coefficient of Surface Normal N(A, B, C)? [3+3]
7. Compare the Gouraud shading with Phong shading. Develop the expression for Phong model considering the intensity attenuation for multiple point light sources with necessary figures. [6+8]
8. What is the difference between object space method and image space method for visible surface determination? Describe scan line method to find visible lines with example. [4+8]
9. What is OpenGL? Explain Call back function? [2+2]

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