

## Examination Control Division

2069 Chaitra

Exam.	Regular	
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. Derive decision parameters for midpoint circle algorithm assuming the start position as  $(r, 0)$  and points are to be generated along the curve path in counter clock wise order. What is symmetry property? [8+2]
2. Explain the two dimensional viewing pipeline. Derive the 2D transformation matrix for scaling with respect to an arbitrary fixed point. [4+6]
3. How can you perform three dimensional rotations of an object about some arbitrary axis? Explain. [8]
4. What is Geometric table? Construct a Geometric table for considering an object having 3 surfaces formed from 6 vertices and 8 edges. [2+6]
5. How can you model a curved surface using polygons only? Explain the use of polygon tables for boundary representations. [3+5]
6. What is the difference between object space method and image space method for visible surface determination? Explain the Z-buffer method for visible surface determination. [3+7]
7. Explain the Phong illumination model for specular reflection. [7]
8. Explain the Gouraud Shading intensity-interpolation scheme for polygon-rendering. [7]
9. Why open\_GL required? Explain with examples. [6]
10. Write short notes on: [2×3]
  - a) Applications of computer graphics
  - b) Two-point perspective projection

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