TRIBHUVAN UNIVERSITY
INSTITUTE OF ENGINEERING
Examination Control Division
2078 Kartik

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

Subject: - Computer Graphics *(EX 603)*

✓ 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. What is computer graphics? Calculate the total memory required to store a 10 minute video in a SVGA system with 24 bit true color and 60 fps refresh rate. [2+4]

2. Write an algorithm for drawing a circle. Using midpoint circle drawing algorithm, calculate the coordinates on the first quadrant of a circle having radius 8 and centre (10, 10). [4+6]

3. It is necessary to construct curves using parameteric equations? Justify. List down the steps for modeling curves using splines. [4+4]

4. Reflected the triangle ABC about the line $3X - 4Y + 8 = 0$. The position vector of the coordinate ABC is given A(4, 1), B(5, 2) and C(4, 3). [8]

5. Describe 3D viewing pipeline. Derive complete world-to-viewing coordinate transformation matrix. [3+7]

6. Why do we use geometric tables and attribute tables for defining a polygon surface? How do you calculate the spatial orientation of a polygon? [3+3]

7. What is the limitation of Z-buffer method? How does A-buffer method overcome it, explain? [3+7]

8. Derive the expression to calculate the total light intensity in a point. [8]

9. Compare and contrast between Gouraud and Phong shading model. [8]

10. What is OpenGL? How can we draw colored line and polygon using OpenGL? [2+4]

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