TRIBHUVAN UNIVERSITY
INSTITUTE OF ENGINEERING
Examination Control Division
2077 Chaitra

Exam.	Regular		
Level	BE	Full Marks	80
Programme	BEI	Pass Marks	32
Year / Part	II / II	Time	3 hrs.

Subject: - Computer Graphics *(EX 554)*

- ✓ 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. Consider 256 × 256 image with 24-bit true color. If 10 minutes video is capture with frame rate of 50fps calculate the total memory required? [4]
2. Derive the decision parameters for mid-point ellipse drawing algorithm with necessary figures. [10]
3. Why we need clipping operation in graphics? Clip a line having end coordinates (4,12) and (8,8) against a rectangular window having left bottom corner at (5,5) and right top corner at (9,9) using liang barskys algorithm. [2+6]
4. Perform rotation of a triangular with vertices (100,100,100), (200,200,150) and (150, 150, 300) about Y-axis with 45 degree in clockwise direction. Show each step involved. [3+7]
5. Find the equation of the Bezier curve with given four 2D control points (0,0), (8,10), (15,-8), (20,0) and calculate the coordinate point at u=0.6. [5+3]
6. Differentiate object space method and image space method. Explain depth buffer method with necessary figures and show the depth calculation steps. What is its drawback? [10]
7. What are the guidelines to generate error free table? How the geometric informations of 3-D objects are stored for the object representation? Explain with examples. [2+6]
8. Derive the expression to calculate the intensity of Specular reflection in the presence of Point light source. Also write the expression for multiple light sources. How do you consider the distance to calculate the intensity for Specular Reflection? [6+2+2]
9. What are the disadvantages of flat shading model? Which method do you prefer to overcome this disadvantages? Explain. [8]
10. Explain the importance of OpenGL in computer graphics. [4]

***