35 TRIBHUVAN UNIVERSITY
INSTITUTE OF ENGINEERING
Examination Control Division
2069 Ashad

Exam.	New Back (2066 & Later Batch)		
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 do you mean by computer graphics? Differentiate between Raster and Random scan display system? [1+3]
2. Using midpoint circle drawing algorithm, find all the points of a circle of radius10 units in all the quadrants, where the center of the circle is (20, 30). What is a staircase effect? [8+2]
3. Reflect a triangle whose vertices are A(–1,0), B(0, –2) and C(1, 0) about a line y=x+2. [6]
4. Explain the significance of projection and its type. Derive a three dimensional matrix expression to scale a point with respect to any arbitrary point $A(X_p, Y_p, Z_p)$. [4+6]
5. Given four 2-dimensional control points P0(0,0), P1(3,3) P2(–2,–2) and P3(2,3), draw a smooth curve using Bezier spline method. [8]
6. What is boundary representation technique? Explain any one technique with practical example. [8]
7. Given a triangular object ABC having A(1,0,0), B(0,1,0) and C(0,0,1), if the observer is at point (5,5,5), is the face ABC visible? [10]
8. What do you mean by illumination and surface rendering? Explain Gouraud Shading model. [4+6]
9. What is an OpenGL? Explain OpenGL syntax to draw a three dimensional, floating point vectored vertex. [2+4]
10. Write short notes on: [4×2]
    a) Two dimensional viewing pipeline
    b) Intensity Attenuation and Transparency

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