

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 radius 10 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 $P_0(0,0)$, $P_1(3,3)$, $P_2(-2,-2)$ and $P_3(2,3)$, 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

