

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. How much time is spent scanning across each row of pixels during screen refresh on a raster system with resolution  $1024 \times 768$  and a refresh rate of 60 frames per second? [4]
2. Mention the disadvantages of DDA method. Write the complete Bresenham's line drawing algorithm and using midpoint circle drawing algorithm calculate the co-ordinate on the first quadrant of a circle having radius 6 and centre (20,10) [2+4+4]
3. State the conditions of point clipping. Perform clipping operation for the following using Liang Barskey line clipping algorithm: [2+6]  
Clipping window: (Xmin, Ymin) = (2,5) and (Xmax, Ymax) = (35,50)  
Line: (x1, y1) = (-2,2) and (x2,y2) = (45,40)
4. Define window and view port. Describe three dimension windows to view port transformation with matrix representation for each step. Derive oblique projection matrix with necessary assumptions. [1+4+5]
5. Define Hermite Interpolation in defining a curve. Use it to find the blending function of a parametric cubic curve in 2D graphics. [2+6]
6. Describe polygon, Vertex and Edge table of polygon. How these terms are important in computer graphics. [8]
7. Describe z-buffer method for visible surface detection in detail. State its limitation and recommended method that addresses it. [7+3]
8. Calculate the total intensity using Phong reflection model by considering all type of light sources. [8]
9. Compare and Contrast between Gouraud and Phong Shading Model. [8]
10. Write short notes on: [3×2]
  - a) Call back function
  - b) Open GL

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