

| 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 (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. Differentiate between vector and raster scan systems. [4]
2. Derive and write midpoint algorithm for drawing a circle. [5+5]
3. What are the different steps of two dimensional world to screen viewing transformation? Describe with matrix representation at each steps. [5]
4. Obtain the end points of the line that connects P1(0,120) and P2(130,5) after cohen-sutheland clipping. The clip window has the following parameters. [5]
 $x_{\min} = 0, y_{\min} = 0, x_{\max} = 150$ and $y_{\max} = 100$
5. Describe three dimensional viewing pipelining. Derive the transformation matrix for parallel projection. [4+6]
6. Explain about parametric cubic curve? What is a Bezier Curve? Explain its properties with examples. [2+6]
7. Explain boundary representation technique to represent three dimensional objects with suitable example. [8]
8. Compare object space method with image space method. Explain, How Back-face detection method is used to detect visible surface. Also explain z-Buffer method. [2+4+4]
9. Define and explain the term ambient light, diffuse reflection and specular reflection with appropriate mathematical expressions. [7]
10. Explain the method of Phong shading for polygon rendering. [7]
11. Explain about Open GL and call back functions. [6]
