

- N. B.: (1) **All** questions are **compulsory**.
 (2) Make **suitable assumptions** wherever necessary and **state the assumptions** made.
 (3) Answers to the **same question** must be **written together**.
 (4) Numbers to the **right** indicate **marks**.
 (5) Draw **neat labeled diagrams** wherever **necessary**.
 (6) Use of **Non-programmable** calculators is **allowed**.

1. Attempt any three of the following:

15

- List and explain the graphic devices used in computer graphics.
- How does a mechanical mouse work?
- Write short note on vector display of computer graphics.
- Explain Digital Differential Analyzer (DDA) algorithm.
- Explain Sutherland Hodgeman algorithm for polygon clipping with example.
- Use the Cohen Sutherland algorithm to clip line P1 (70,20) and p2 (100,10) against a window lower left hand corner (50,10) and upper right hand corner (80,40).

2. Attempt any three of the following:

15

- What is transformation? Explain translation transformation with the help of example.
- Describe homogeneous coordinate system for translation and scaling.
- Magnify the triangle with vertices A (0, 0), B (1, 1) and C (5, 2) to twice its size while keeping C (5, 2) fixed.
- Explain the matrix representation of 3D translation scaling.
- Write a note on 2 point perspective transformation.
- Distinguish between cavalier and cabinet projection.

3. Attempt any three of the following:

15

- Short note on Canonical View Volume (CVV).
- Explain combined transformation matrix for viewing in detail.
- Write short note on photometry in detail.
- What are the various parameters used in color appearance.
- Explain LMS color space in detail.
- Describe the transport equation of light in brief.

4. Attempt any three of the following:

15

- What is visible surface determination? Explain different methods of visible surface determination.
- Explain object image space method for efficient visible surface algorithm.
- Explain parametric representation of an ellipse.
- What is z-buffer algorithm used for? List its advantages and disadvantages.
- Briefly explain Painter's algorithm with example.
- Write short note on quadratic surface.

[TURN OVER]

5. Attempt any three of the following:

- Explain any two principals of animation with suitable example.
- What is key framing? What are the advantages of key framing?
- Explain different digital image file formats.
- What is image compression? Explain lossless compression technique.
- What is image enhancement? Explain frequency domain method of image enhancement.
- Explain the concept of median filtering in detail.
