

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY-2008**III B.TECH SUPPLEMENTARY EXAMINATIONS
COMPUTER GRAPHICS
(COMPUTER SCIENCE&ENGINEERING)**

AUG/SEP -2008

TIME-3 HOUR
MARK-80**ANSWER ANY FIVE QUESTIONS. ALL QUESTIONS CARRY EQUAL MARKS.**

1. List the operating characteristics of

- (a) Raster refresh systems
- (b) Vector refresh systems
- (c) Plasma panel
- (d) LCDs.

2. (a) Explain the mathematical procedure in deciding the points on the periphery of the ellipse using mid-point ellipse algorithm.

(b) Illustrate the properties of ellipse which are considered in efficient generation of ellipse using mid-point method.

3. (a) Derive the transformation matrix for rotation about origin.

(b) Explain the terms:

- i. Homogeneous Coordinates
- ii. Rigid-body transformations
- iii. Composite transformations.

4. (a) What are the stages involved in Window-to-viewport coordinate transformation. Explain about each stage.

(b) What is the procedure followed in point clipping with respect to a rectangular window.

5. If the equation for a plane surface is expressed in the form $Ax+By+Cz+D=0$. Explain the procedure to calculate the parameters A, B, C and D using Cramer's rule if the three successive polygon vertices are given as input.

6. (a) What is the procedure for reflecting an about an arbitrarily selected plane.

(b) What are the characteristics of perspective projections?

7. (a) Distinguish between object-space and image space methods of visible surface detection algorithms. Give examples for each.

(b) Given points P (1, 2, 0), P (3, 6, 20) P (2, 4, 6) and a view point C (0, 0, -10), determine which points obscure the others when viewed from C.

8. (a) List and explain about the steps of animation.

(b) What are the various types of interpolation used in animation.