

**GUJARAT TECHNOLOGICAL UNIVERSITY**  
**M.SC(CS)- INTEGRATED – SEMESTER VI- EXAMINATION –SUMMER-2025**

**Subject Code: 1360302**

**Date: 12/05/2025**

**Subject Name: Computer Graphics**

**Time:10:30 AM TO 01:00 PM**

**Total Marks: 70**

**Instructions:**

1. Attempt all questions.
2. Make Suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.
4. Use of simple calculators and non-programmable scientific calculators are permitted.

- Q.1** (a) List out the applications of computer Graphics. **03**  
(b) Describe Beam penetration technique for color display. **04**  
(c) Explain storage Tube graphics display with diagram. **07**

- Q.2** (a) Write down the limitations of DDA line drawing method. **03**  
(b) What is Bezier curve? List out the properties of Bezier curve? **04**  
(c) Write down the Midpoint Ellipse generation algorithm. **07**

**OR**

- (c) Explain the Bresenham's circle drawing algorithm with all necessary deviations. Consider the start position as (0,r) and move in clockwise direction. **07**

- Q.3** (a) Explain the limitations of Sutherland-Hodgeman polygon clipping algorithm. **03**  
(b) What do you mean by 2D rotation? Explain with an example. **04**  
(c) What do you mean by reflection and shear. Explain with an example. **07**

**OR**

- Q.3** (a) Explain the concept of 3D translation. **03**  
(b) Explain the concept of window to view port transformation. **04**  
(c) Explain Depth Buffer method for visible surface detection. **07**

- Q.4** (a) Compare the Parallel and Perspective Projection. **03**  
(b) Explain the concept of parametric curves. **04**  
(c) Explain the necessity of Homogeneous co-ordinates? Give Homogeneous co-ordinates for translation, rotation and scaling. **07**

**OR**

- Q.4** (a) Explain the concept of Quadratic surfaces. **03**  
(b) Explain the concept of General 3d viewing pipeline. **04**  
(c) Explain XYZ and CMY color model in detail. **07**

- Q.5** (a) List out the application of computer animation. **03**  
(b) Mention the characteristic of Motion graphics. **04**  
(c) Differentiate B-spline curve and Bezier curve. **07**

**OR**

- Q.5** (a) Explain the concept of Lighting model. **03**  
(b) Explain the concept of Z-buffer algorithm in detail. **04**  
(c) Explain **07**

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