

Seat No.: \_\_\_\_\_

Enrolment No. \_\_\_\_\_

**GUJARAT TECHNOLOGICAL UNIVERSITY**  
**MCA - SEMESTER-IV • EXAMINATION – SUMMER – 2016**

**Subject Code: 640008**

**Date: 04-06-2016**

**Subject Name: Computer Graphics**

**Time: 10.30a.m. To 01.00p.m.**

**Total Marks: 70**

**Instructions:**

- 1. Attempt all questions.**
- 2. Make suitable assumptions wherever necessary.**
- 3. Figures to the right indicate full marks.**

- Q.1** (a) i. What is virtual reality? **02**  
ii. What is basic attribute for all primitives? Explain it. **05**  
(b) Explain boundary fill algorithm. **07**
- Q.2** (a) i. Write a note on 3-D viewing devices. **03**  
ii. What is depth cueing? Explain. **04**  
(b) What is the process to obtain oblique parallel projection? **07**
- OR**
- (b) What is perspective projection? Explain perspective projection transformation matrix. **07**
- Q.3** (a) Explain midpoint circle drawing algorithm. **07**  
(b) Explain OpenGL line functions. **07**
- OR**
- Q.3** (a) Explain Bresenham's line drawing algorithm. **07**  
(b) Explain OpenGL vertex arrays. **07**
- Q.4** (a) What is reflection? Explain 2D reflection. **07**  
(b) What is transformation? Explain 2D transformations. **07**
- OR**
- Q.4** (a) What is shear? Explain with suitable example. **07**  
(b) Explain 2D Pivot-Point rotation and 2-D Fixed-Point scaling. **07**
- Q.5** (a) Explain mapping from clipping window to normalized viewport. **07**  
(b) Explain Cohen – Sutherland line clipping algorithm. **07**
- OR**
- Q.5** (a) Explain Nicholl-Lee-Nicholl line clipping algorithm. **07**  
(b) Explain Sutherland–Hodgman polygon clipping algorithm. **07**

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