

Seat No.: _____

Enrolment No. _____

GUJARAT TECHNOLOGICAL UNIVERSITY
MCA - SEMESTER- IV EXAMINATION – WINTER 2016

Subject Code:2640008

Date:26/10/ 2016

Subject Name: Computer Graphics (CG)

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.

- Q.1** Define the following terms- **14**
- a) Computer graphics
 - b) Raster scan system
 - c) Absolute and relative coordinates
 - d) Color and Gray scale
 - e) Shear
 - f) GLUT
 - g) Vanishing Point
- Q.2** (a) List down input devices for computer graphic system and discuss any two in detail. **07**
- (b) Write Bresenham's line drawing algorithm. Discuss one advantage and disadvantage of the algorithm. **07**
- OR**
- (b) Write Bresenham's Midpoint circle drawing algorithm and explain in brief. **07**
- Q.3** (a) Explain Boundary fill and flood fill algorithm for areas with irregular boundaries. **07**
- (b) Discuss OpenGL functions for attributes of graphics primitives. **07**
- OR**
- Q.3** (a) Describe antialiasing and explain supersampling straight-line segment and subpixel weighting masks in detail. **07**
- (b) Write the matrix for three dimensional translation and rotation. **07**
- Q.4** (a) What is reflection? Explain reflection about x-axis, y-axis, line $y=x$ taking suitable example. **07**
- (b) Write down Cohen Sutherland line clipping algorithm. **07**
- OR**
- Q.4** (a) Write a short notes on following-
1. Projections 2. Depth Cueing 3. Surface rendering 4. Exploded and cutaway views. **07**
- (b) What will be the effect of scaling factor $S_x=1/3$ and $S_y=1/4$ on a given triangle ABC whose co-ordinates are A= (3, 2) B= (5, 3) and C= (4, 4). **07**
- Q.5** (a) Discuss Liang-Barsky line clipping algorithm **07**
- (b) Explain Three-dimensional viewing transformation with suitable diagram. **07**
- OR**
- Q.5** (a) Explain Sutherland-Hodgman Polygon clipping algorithm with example. **07**
- (b) Discuss Parallel projection in detail. **07**
