

Seat No.: _____

Enrolment No. _____

GUJARAT TECHNOLOGICAL UNIVERSITY
MCA – SEMESTER -IV • EXAMINATION – WINTER 2015

Subject Code: 640008

Date: 09/12/2015

Subject Name: Computer Graphics (CG)

Time: 10.30 a.m. To 01.00 p.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)** 1) Differentiate following: **06**
i) Raster Scan Display and Random Scan Display
ii) Track Ball and Space Ball
iii) Bitmap Font and Outline Font
2) Explain Computer Graphics Software with example and what its primary goal is? **01**
- (b)** What are the basic attributes of Output Primitive? **02**
Write down Mid Point Circle Algorithm. **05**
- Q.2 (a)** 1) Perform a 45 degree of rotation of triangle A(0,0),B(1,1) and C(5,2) about the point (-1,-1). **04**
2) Write down homogenous Matrix for Translation, Rotation and Scaling Transformation. **03**
- (b)** 1) Write a recursive procedure to fill area by Boundary Fill Method using 8-connected approach. **04**
2) Discuss Scan-line Polygon fill algorithm in brief. **03**
- OR**
- (b)** Discuss Anti aliasing in detail. **07**
- Q.3 (a)** Explain Flood fill Algorithm in detail. **07**
(b) 1) Write the necessary steps to rotate a three dimensional object about an axis that is not parallel to one of the coordinate axes. **04**
2) Discuss Shear Transformation with example. **03**
- OR**
- Q.3 (a)** Discuss Inside-outside tests in detail. **07**
(b) 1) Write a short note on Character Generation. **04**
2) Discuss any five applications of Computer Graphics. **03**
- Q.4 (a)** What is Line Clipping? Explain Cohen-Sutherland line Clipping Algorithm. **07**
(b) 1) Explain 2-Dimensional Viewing Pipeline. **04**
2) Explain Window-to-Viewport coordinate transformation. **03**
- OR**
- Q.4 (a)** What is Polygon Clipping? Explain Sutherland-Hodgeman Polygon Clipping Algorithm. **07**
- Q.4 (b)** Explain Bresenham's Ellipse drawing algorithm **07**
- Q.5 (a)** What is Projection? Discuss Parallel Projection in detail. **07**
(b) Explain 3-D Viewing Pipeline. **07**

OR

- Q.5** (a) What is Projection? Discuss Perspective Projection in detail. **07**
(b) What is unbundled attribute? Explain any six functions for bundled attributes. **07**
