

GUJARAT TECHNOLOGICAL UNIVERSITY

MCA - SEMESTER-IV • EXAMINATION – SUMMER - 2017

Subject Code: 640008

Date: 08/06/2017

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 (a)** Explain the following terms. **08**
- 1) Resolution
 - 2) Morphing
 - 3) Aspect Ratio
 - 4) Refresh Buffer
 - 5) Rigid Body Transformation
 - 6) Surface Rendering
 - 7) Viewport
 - 8) Vanishing Point
- (b)** Differentiate following: **06**
- 1) Track Ball and Space Ball
 - 2) Absolute coordinate and Relative coordinate
 - 3) Bitmap and Pixmap
- Q.2 (a)** List and explain various application areas of Computer Graphics. **07**
- (b)** Differentiate between random scan display and raster scan display. Which is better and why? **07**
- OR**
- (b)** What is flat panel display? Describe its categories and explain any one. **07**
- Q.3 (a)** Explain Bresenham's line generating algorithm. What are its advantages over DDA? **07**
- (b)** Explain any seven OpenGL Functions for output primitives. **07**
- OR**
- Q.3 (a)** State Midpoint Circle Algorithm and explain in brief. **07**
- (b)** Compare matrix and homogeneous coordinate representation for 2-D translation, rotation and scaling. **07**
- Q.4 (a)** Explain boundary fill algorithm. How it is differ from flood fill algorithm? **07**
- (b)** What is reflection? Explain reflection about x-axis, y-axis, line $y=x$ taking suitable example. **07**
- OR**
- Q.4 (a)** Explain antialiasing. List different antialiasing methods. Explain any two methods. **07**
- (b)** Explain concave and convex polygon. Specify the method for converting concave to convex polygon using example. **07**
- Q.5 (a)** What is polygon clipping? Explain Sutherland-Hodgeman Polygon Clipping Algorithm. **07**
- (b)** Explain Parallel Projection and perspective Projection in detail. **07**
- OR**
- Q.5 (a)** Explain Cohen-Sutherland line clipping algorithm. **07**
- (b)** Write detailed note on 3D viewing pipeline. **07**
