Seat No.: _____ Enrolment No._____

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**

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