Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

MCA – SEMESTER – IV • EXAMINATION – SUMMER 2018

Subject Code: 2640008 Date: 30-May-2018

Subject Name: Computer Graphics

Time: 10.30 am to 1.00 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. **07**

(1) Rigid body transformation
(2) Pixel
(3) True color system
(4) Visualization
(5) Depth cueing
(6) Refresh rate
(7) CAM

(b) Differentiate between **07**

(1) Relative coordinate and Absolute coordinate
(2) Space ball and Track ball

Q.2 **(a)** Explain the various applications of Computer Graphics. **07**

(b) What is flat panel display? Describe its categories and explain any one in detail. **07**

OR

(b) Differentiate between random scan display and raster scan display. Which is better? Explain. **07**

Q.3 **(a)** Write Bresenham's line drawing algorithm. Discuss one advantage and disadvantage of the algorithm. **07**

(b) Explain Rotation, Scaling and Translate transformations. **07**

OR

Q.3 **(a)** Derive and explain Midpoint Circle algorithm. **07**

(b) Explain the basic design and operation of Cathode Ray Tube. **07**

Q.4 **(a)** Explain concave and convex polygon. Specify the method for converting concave to convex polygon using example. **07**

(b) Explain boundary fill algorithm. How it is differ from flood fill algorithm? **07**

OR

Q.4 **(a)** Write detailed note on 3D viewing pipeline. **07**

(b) What is Antialiasing? List various types of antialiasing and explain each in brief. **07**

Q.5 **(a)** Explain any seven OpenGL Functions for output primitives. **07**

(b) Explain Cohen-Sutherland line clipping algorithm. **07**

OR

Q.5 **(a)** What is polygon clipping? Explain Sutherland-Hodgeman Polygon Clipping Algorithm. **07**

(b) Explain Parallel Projection and perspective Projection in detail. **07**

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