Seat No:_____   Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

MCA – SEMESTER – IV • EXAMINATION – SUMMER 2018

Subject Code: 640008   **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 Explain the following term. **14**
1) Resolution   2) Gray Scale
3) Homogeneous Coordinates   4) View volume
5) CAD   6) Aspect ratio
7) Random – scan system

Q.2 (a) Explain the difference between OpenGL core library, the OpenGL Utility and the OpenGL Utility Toolkit. And explain the following function **07**
1) glutInit( )
2) glutInitDisplayMode( )

(b) Describe emissive and nonemissive displays and explain any one nonemissive flat – panel display device. **07**

OR

(b) Explain Midpoint circle algorithm. **07**

Q.3 (a) Use Bresenham's line algorithm to derive decision parameter and explain in detail. **07**

(b) Write Short note on: **07**
1) Color table
2) Line attributes

OR

Q.3 (a) Describe Midpoint ellipse algorithm. **07**
(b) Write Short note on: **07**
1) Odd-even rule
2) Polygon tables

Q.4 (a) Explain Boundary-fill algorithm using 8-connected method and write the procedure for same. **07**

(b) Describe two-dimensional composite transformation and explain the composite matrix for 1) General two-dimensional pivot-point rotation 2) Composite two-dimensional scaling **07**

OR

Q.4 (a) What is antialiasing? Why is it used? Explain various methods used for antialiasing. **07**

(b) Explain three-dimensional reflection and three-dimensional shears **07**

Q.5 (a) Explain Liang-Barsky line clipping algorithm. **07**
(b) Explain Oblique parallel projection and derive the equation for obtaining projection point for same **07**

OR

Q.5 (a) Explain Sutherland – Hodgman polygon clipping algorithm. **07**
(b) Explain perspective projection. What is vanishing point? Describe various vanishing point for perspective projection. **07**

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