*Seat No.: _____* *Enrolment No._____*

# GUJARAT TECHNOLOGICAL UNIVERSITY

## MCA - SEMESTER–IV • EXAMINATION – SUMMER – 2016

**Subject Code:2640008** **Date: 04-06-2016**
**Subject Name: Computer Graphics**
**Time: 10.30a.m. To 01.00p.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) Answer the following questions: 08**

1. CAM stands for _____.
2. The technique used to summarize financial, statistic, mathematical, scientific and economic data is
   a. Computer Art
   b. Image Processing
   c. Presentation Graphics
   d. None Of the above
3. 2-D graphs are more efficient than 3-D graphs True or False
4. Refreshing on raster can display is carried out at the rate of
   a) 60 to 80 frames per sec
   b) 40 to 60 frames per sec
   c) 30 to 60 frames per sec
   d) None of the above
5. The amount of light emitted by the phosphor coating depends on the
   a) Number of electrons striking the screen
   b) Speed of electrons striking the screen
   c) Distance for cathode to the screen
   d) None Of the above
6. Which of the following algorithms can be used for circle generation?
   a. Bresenham's algorithm
   b. Midpoint algorithm
   c. Both (a) and (b)
   d. None of the above.

7. Which of the following pixels will not be put ON for drawing an origin centered circle with radius 8
   a) 0,8
   b) 1,8
   c) 4,6
   d) 5,6

8. _____ GLUT library function is used for deleting a display window that is already created.

| | | | |
|---|---|---|---|
| **Q. 1** | **(B)** | Explain the Following**(Any Three)**<br>**I.**Refresh Rate **II.**Depth Cueing<br>**III.**Vanishing Point **IV.**Aspect Ratio | **6** |
| **Q-2** | **(A)** | State Midpoint Circle Algorithm and explain in brief. | **7** |
| **Q-2** | **(B)** | Explain the Bresenham Line generation Algorithm | **7** |
| | | **OR** | |
| **Q.2** | **(B)** | Explain the basic design and operation of Refresh Cathode- Ray Tube. | **7** |
| **Q-3** | **(A)** | List out the Application Area OF Computer Graphics and Explain any Five of them. | **7** |
| **Q-3** | **(B)** | Explain 2D Window to viewport Transformation and its pipeline. | **7** |
| | | **OR** | |
| **Q.3** | **(A)** | Explain General Two Dimensional Pivot point Rotation and Derive its Matrix. | **7** |
| **Q.3** | **(B)** | Explain following functions with Parameter<br>**I.**glMatrixMode( ) **II.**glColor* ( colorcomponent)<br>I**II.**.glutInitDisplayMode(mode) **IV.**glutInitWindowSize() | **7** |
| **Q. 4** | **(A)** | Explain two dimension Scaling, Rotation and Translate | **7** |
| **Q. 4** | **(B)** | Translate a square ABCD with the coordinates A(0,0),B(5,0),C(5,5),D(0,5) by 2 units in x-direction and 3 units in y-direction. | **7** |
| | | **OR** | |

| | | | |
|---|---|---|---|
| **Q. 4** | **(A)** | Explain Cohen Sutherland line clipping algorithm. | **7** |
| **Q. 4** | **(B)** | Explain concave and convex polygon. Specify the method for converting concave to convex polygon using example. | **7** |
| **Q. 5** | **(A)** | **Explain the following** | |
| | **I.** | Differentiate between Parallel and Perspective projection and explain Perspective projection in brief. | **4** |
| | **II.** | Cavalier and Cabinet Oblique Parallel Projections. | **3** |
| **Q. 5** | **(B)** | Describe the difference between 4-connected area and 8-connected area for filling irregular boundary shapes andexplain any one algorithm. | **7** |

**OR**

| | | | |
|---|---|---|---|
| **Q. 5** | **(A)** | Write short note on the Following | **7** |
| | | **I.**Inside Outside Test **II.** Line Attributes | |
| **Q. 5** | **(B)** | Explain DDA line drawing algorithm with Examples | **7** |

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