

Roll No. ....

Total Pages : 03

**OMCA/D-18**                      **10011**  
**COMPUTER GRAPHICS**  
**MCA-501**

Time : Three Hours]

[Maximum Marks : 80

**Note :** Attempt *Five* questions in all, selecting at least *one* question from each Unit. Q. No. 1 is compulsory. All questions carry equal marks.

1. Answer the following questions in brief :                      8×3
- (a) How is resolution of a display device defined ?
  - (b) What will be the size of the look-up table in bits if there are 3 bit planes in frame buffer and 4 bits represent each color in the look-up table ?
  - (c) Write the equation of a circle that is used in polynomial method for drawing circles.
  - (d) What will be the 8-neighbourhood of pixel (6, 8) when used in stack-based seed fill algorithm
  - (e) Write the equations for shearing transformation when an object is x-sheared.
  - (f) What is the purpose of pointing and positioning techniques ?
  - (g) What is X-minmax test as used in hidden surface identifications ?
  - (h) What happens to pictures when they are morphed ?

## Unit I

2. Describe the components and working of Interactive graphics system. What is the purpose of a display processor ? **14**
3. What is the use input devices in a graphics applications ? Give examples of graphics applications and the input devices used with them to support your answer. **14**

## Unit II

4. Describe any *two* coordinate systems used in graphics along with a description of one application/technique for each where they are used. **14**
5. What is the advantage of Bresenham's drawing algorithm over other algorithms for drawing lines and circles. Justify your answer using Bresenham's line drawing algorithm. **14**

## Unit III

6. Explain the concept of composite transformation by describing the procedure involved in fixed point scaling using a suitable example. **14**

7. Which form of line equation is used in Liang-Barsky line clipping algorithm. Describe, how the algorithm works for clipping lines ? 14

#### Unit IV

8. What does geometrical and topological information represent while modeling 3-D objects ? Support your answer by a suitable example. 14
9. Distinguish between the following : 14
- (a) Orthographic and oblique Parallel Projection
  - (b) Depth sorting and area subdivision hidden surface algorithms.

