

#### UNIT – IV

8. (a) What are Bezier surfaces ? How are these represented ? Illustrate their relevance in graphics. 8
- (b) What are shading methods ? Which method is most popular ? Justify your answer. 8
9. Explain the following :
- (a) Multimedia' Authoring process. 8
- (b) 3D Transformation matrices. 8
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Roll No. ....

**67106**

**MCA 3rd Semester (CBCS Scheme) w.e.f.  
Dec.-2017-18 Examination – November, 2017**

**COMPUTER GRAPHICS**

**Paper : 17MCA33C2**

*Time : Three Hours ]*

*[ Maximum Marks : 80*

*Before answering the questions, candidates should ensure that they have been supplied the correct and complete question paper. No complaint in this regard, will be entertained after examination.*

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**Note :** Question No. 1 is *compulsory*. Attempt *four* questions by selecting *one* question from each Unit. All questions carry equal marks.

1. (a) What is interlacing ? Why is it needed ?  $2 \times 8 = 16$
- (b) What is random scan system ?
- (c) What is interactive computer graphics ? State its relevance.
- (d) What are concave and convex polygons ?
- (e) What is meant by coordinate systems transformation ?

- (f) Why Bresenham's line algorithm is preferred over DDA line algorithm ?
- (g) What is animation ? State its significance.
- (h) Differentiate between parallel and perspective projection.

### UNIT - I

- 2. (a) What are color CRT Monitors ? Which technique is used most and why ? Illustrate. 8
- (b) What do you mean by raster scan systems ? What are their characteristics ? How are these systems different from random scan systems ? Illustrate. 8
- 3. Explain the following :
  - (a) Graphics Software Standards 8
  - (b) Non-Emissive Displays 8

### UNIT - II

- 4. (a) What steps are required to plot a line whose slope is between 0 and 30° using Bresenham's method ? Indicate which raster locations would be chosen by Bresenham's algorithm when scan-converting a line from screen coordinate (2, 4) to screen coordinate (7, 12). 10
- (b) What is anti-aliasing ? How is it useful ? Illustrate. 6

5. Explain the following :

- (a) Composite Transformation 8
- (b) 2D Shearing Transformation 8

### UNIT - III

- 6. (a) Find the normalization transformation that maps a window whose lower left corner is at (2, 3) and upper right corner is at (7, 10) onto : 9
  - (i) A viewport that is the entire normalized device screen and
  - (ii) A viewport that has lower left corner at (0, 0) and upper right corner (1/2, 1/2).
- (b) What is Cyrus-Beck Line Clipping algorithm ? Illustrate through a suitable example. 7

7. Explain the following :

- (a) Sutherland-Hodgeman polygon clipping algorithm. 8
- (b) Boundary-Fill algorithm. 8