Total No. of Questions—**12**] [Total No. of Printed Pages—**4**

Seat No.	

[4957]-208

S.E. (Computer Engineering) (Second Semester)

EXAMINATION, 2016

COMPUTER GRAPHIC

(2008 PATTERN)

Time : Three Hours **Maximum Marks : 100**

N.B. **:—** (*i*) Answers to the two Sections should be written in separate-books.

(*ii*) Neat diagrams must be drawn wherever necessary.

(*iii*) Figures to the right indicate full marks.

SECTION I

1. (*a*) Explain DDA line drawing algorithm. Consider the line from (0, 0) to (–8, –4), use DDA line drawing algorithm to rasterize the line. [10]

(*b*) Define Aspectratio, Random scan display, Raster scan display. [6]

(*c*) What is aliasing ? [2]

Or

2. (*a*) Explain Breseham's line drawing algorithm with example. [8]

(*b*) What a short note on display file ? [6]

(*c*) Describe frame buffer in computer graphics. [4]

P.T.O.

3. (*a*) Name with example different types of polygons. [4]

(*b*) Explain any *one* method for testing given point is inside or outside the polygon. [4]

(*c*) Explain Sutherland Hodgeman polygon clipping with example. [8]

Or

4. (*a*) What is dipping ? Explain Cohen-Sutherland outcode algorithm. [8]

(*b*) Explain scan-fill method of polygon filling with example. [8]

5. (*a*) Derive transformation matrix for rotation about an arbitrary point in 2D. Give example. [8]

(*b*) Write the transformation matrix in 3-D for : [8]

(*i*) Translation

(*ii*) Scaling

(*iii*) Rotation about *x*-axis

(*iv*) Rotation about *z*-axis

Or

6. (*a*) Explain rotation of an object about an arbitrary axis in 3-D. [10]

(*b*) What is Vanishing point ? Explain perspective projection types. [6]

SECTION II

7. (*a*) State and explain the methods of controlling animation (any *two*). [8]

(*b*) Explain how segmentation is used in animation with suitable example. [8]

Or

8. (*a*) Describe in brief basic guidelines of animation with suitable examples. [8]

(*b*) Explain segment with its different functions needed to maintain a segmentation file. [8]

9. (*a*) Explain Warnock's algorithm for Hidden surfaces. [8]

(*b*) Describe :

(*i*) Diffused illumination

(*ii*) Point source illumination. [8]

Or

10. (*a*) Explain Gouraud shading. [8]

(*b*) Write short notes on :

(*i*) Shadows

(*ii*) Transparency. [8]

11. (*a*) What is interpolation ? Explain lagrangian interpolation method. [8]

(*b*) Explain Bezier curves with mathematical equations and example. [10]

Or

12. Write short notes on any *three* of the following : [18]

(*i*) Hilbert's curve

(*ii*) Fractal line

(*iii*) Fractal surfaces

(*iv*) Fractal geometry.