Total No. of Questions—**8**] [Total No. of Printed Pages—**3**

Seat No.	

[5252]-567

S.E. (Computer Engg.) (Second Semester) EXAMINATION, 2017

COMPUTER GRAPHICS

(2015 PATTERN)

Time : 2 Hours **Maximum Marks :** 50

N.B. **:—** (*i*) Neat diagrams must be drawn wherever necessary.

(*ii*) Assume suitable data, if necessary.

(*iii*) Attempt Q. **1** *or* Q. **2**, Q. **3** *or* Q. **4**, Q. **5** *or* Q. **6** and Q. **7** *or* Q. **8**.

1. (*a*) Explain the following terms with examples (any *three*) : [6]

(1) Display file structure

(2) Winding Method

(3) Polygon filling with pattern

(4) Generalised Clipping.

(*b*) Explain Bresenham algorithm for line drawing. Write advantages and disadvantages of it over DDA line drawing algorithm. [6]

Or

2. (*a*) Explain Sutherland-Hodgeman algorithm for polygon clipping. Compare it Cohen-Sutherland Clipping. [6]

(*b*) Write Bresenham circle drawing algorithm. Also explain mathematical foundation of it. [6]

P.T.O.

3. (*a*) Explain the following terms with examples : [4]

(1) Color gamut

(2) Key-frame

(3) Animation

(4) Morphing.

(*b*) Explain 3D clipping with example. [4]

(*c*) For origin centered unit square, rotate 45° clockwise, scale by a factor 2 in *x*–direction. Find resultant coordinates of square (write required matrices). [4]

Or

4. (*a*) Describe segment and explain any *three* operations carried out on it. [4]

(*b*) Explain rotation about an arbitrary point in 2D. [4]

(*c*) Explain 3D viewing transformation. [4]

5. (*a*) Explain Backface Detection and removal. [4]

(*b*) Explain and compare point source and diffuse illumination. [5]

(*c*) Explain Phong Shading Algorithm. [4]

Or

6. (*a*) Explain Binary Space Partitioning Algorithm with example. [5]

(*b*) Explain Gaurad Shading algorithm. [4]

(*c*) Write a note on Phong Reflection Model. [4]

7. (*a*) Explain blending function for B-spline curve. [4]

(*b*) Explain architecture of *i*860. [4]

(*c*) What is OpenGL ? Write *four* important features of the same. Write any *two* 3D transformation functions of OpenGL. [5]

Or

8. (*a*) Write any *four* important features of NVIDIA gaming platform. Explain need of NVIDIA workstation in gaming [5]

(*b*) Explain Hilbert curve with example. [4]

(*c*) Explain Koch curve with example. [4]