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[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 Gouraud 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 i860. [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]