B.Tech. SEM -IV Info. Tech. 2014 Course (CBCS) : SUMMER - 2019

SUBJECT: COMPUTER GRAPHICS

Day: Saturday | Time: 10.00 AM TO 01.00 PM

Date: 01/06/2019 | **S-2019-2621** | Max Marks : 60

N.B. :

1) All questions are **COMPULSORY**.
2) Figures to the right indicate **FULL** marks.
3) Assume suitable data, if necessary.
4) Draw neat and labeled diagrams wherever necessary.

Q.1 With a neat block diagrams, explain working of raster display. Differentiate between Random scan and Raster scan display? **(10)**

OR

Q.1 What do you mean by display files? Explain display file structure with examples. **(10)**

Q.2 List various line drawing algorithms, digitized a line from (10,12) to (15,15) on a raster screen using Bresenham's line drawing algorithm. **(10)**

OR

Q.2 State and explain various Polygons filling algorithms with its advantages and disadvantages. **(10)**

Q.3 Apply following transformation on Polygon A(20,20), B(20,50), C(40,20), D(30,60) and E(40,50) **(10)**

a) Translation 12, 16 units along X and Y direction.
b) Rotate 45 degrees about the origin.
c) Scale with Scaling factor X=6, Y=5.

OR

Q.3 Derive the 3D transformation matrix for Rotation about **(10)**

a) An arbitrary axis.
b) An arbitrary plane.

Q.4 Define the Parallel and Perspective projections. Explain concepts of Orthographic projection in detail. **(10)**

OR

Q.4 Elaborate following terms : **(10)**

a) Arbitrary 3D View.
b) Viewing Pyramid.

Q.5 Describe concepts of Depth buffer? Explain the steps of Z-buffer algorithm. State its advantages and disadvantages. **(10)**

OR

Q.5 Explain the following Illumination models with suitable diagrams. **(10)**

a) Ambient light
b) Diffuse reflection.

Q.6 Illustrate important properties of Bezier curves. Compare Bezier curve and B-Spline curve. **(10)**

OR

Q.6 Write a short note on: **(10)**

a) Fractals surfaces
b) Self squaring fractals.

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