P-9117

[6179]-243

S.E. (Computer Engineering) (AI & DS) (Computer Science & Design Engineering)
COMPUTER GRAPHICS
(2019 Pattern) (Semester - III) (210244)

Time : 2½ Hours]   *[Max. Marks : 70*

Instructions to the candidates:

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

2)   *Figures to the right side indicates full mark.*

3)   *Draw neat diagram wherever necessary.*

4)   *Assume suitable data, if necessary.*

Q1) a)   Find transformation of a triangle A(1, 0) B(0, 1) C(1, 1) by performing translation by one unit in x and y directions and then rotating 45° about the origin. **[6]**

b)   What are the types of Projection and write in brief about any one type of projection. **[6]**

c)   Write transformation matrix for (i) 2-D Rotation clockwise direction (ii) 2-D Scaling (iii) 2-D translation (iv) 2-D reflection about X-axis. **[6]**

OR

Q2) a)   Explain Perspective projections with example. **[6]**

b)   Given a circle C with radius 5 and center coordinates (1, 4). Apply the translation with distance 5 towards X axis and 1 towards Y axis. Obtain the new coordinates of C without changing its radius. **[6]**

c)   Given a line segment with starting point as (0, 0) and ending point as (4, 4). Apply 30 degree rotation anticlockwise direction on the line segment and find out the new coordinates of the line. **[6]**

Q3) a)   Write a short note on : **[6]**

    i)   CMY color model   ii)   Properties of light

b)   Explain Back-face Removal algorithm. **[6]**

c)   Explain ambient light and diffuse reflection with examples. **[6]**

Q4) a) Explain the CIE chromaticity diagram. **[6]**

b) Explain Painter's algorithm. **[6]**

c) Explain Gouraud Shading method. **[6]**

Q5) a) What are various applications of Fractals? **[5]**

b) Explain Hilbert's curve with an example. **[6]**

c) Write a short note on Interpolation. **[6]**

OR

Q6) a) Explain B-spline curve. **[5]**

b) Explain the Bezier curve. List its properties. **[6]**

c) What are fractals? Explain Triadic Koch in detail. **[6]**

Q7) a) Compare Conventional and Computer based Animation. **[5]**

b) Discuss NVIDIA as a gaming platform in detail. **[6]**

c) Explain the structure of a segment table with example. **[6]**

OR

Q8) a) Write short note on Motion Specifications. **[5]**

b) Explain architecture of i860. **[6]**

c) Explain creation and renaming of segment. **[6]**

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