SEAT No. :

P1543

[6002]-172

S.E. (Information Technology)
COMPUTER GRAPHICS
(2019 Pattern) (Semester-IV) (214453)

Time : 2½ Hours]

[Max. Marks : 70

Instructions to the candidates:

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

2) Neat diagrams must be drawn wherever necessary.

3) Figures to the right side indicate full marks.

4) Assume Suitable data if necessary.

Q1) a) Use the cohen sutherland line clipping Algorithm with the help of region codes to clip a line AB with A(30,50), B (110,70) and PQ with P (50,30), Q (90,90) to clip a line against a window with lower left-hand corner (40,40) and upper right-hand corner (100,80). show Graphic Representation of Original and clipped line. **[9]**

b) Explain 3D reflection about XY, YZ and XZ plane. **[9]**

OR

Q2) a) Let ABCD be the rectangle window with A (150,150), B(150,200), C(200,200) and D(200,150). Use Cohen Hodgeman polygon clipping algorithm to clip the convex polygon PQR with P (100,175), Q(170,250), R (250,165) and find the final coordinates of the clipped polygon. **[9]**

b) What is projection? Explain with diagram, Perspective Projection with vanishing points as 1 point, 2 point and 3 point. **[9]**

Q3) a) Explain in detail with Diagram. **[9]**

i) RGB Color Model

ii) HSV Color Model

iii) CIE Chromaticity Diagram.

b) Define Shading. Explain with help of diagrams Gourand Shading algorithm in detail. **[8]**

OR

P.T.O.

Q4) a) What is a segment? Why do we need segments? Explain the complete process of **[9]**

      i) Segment Creation,

      ii) Segment Deletion and

      iii) Segment Closing.

    b) Explain in detail combined diffuse and specular reflections with multiple light sources. **[8]**

Q5) a) What are the steps in design in animation sequence? Describe about each step briefly. **[9]**

    b) What is curve interpolation ? As far as splines are concerned what do Bezier and B-splines curves indicate? **[9]**

OR

Q6) a) Explain in detail with diagram how midpoint subdivision method can be used for Bezier-curve Generation. **[9]**

    b) Explain how koch curves are generated. Also calculate the fractal dimension of koch curve. **[9]**

Q7) a) Explain the behavioral modeling in Virtual Reality. **[6]**

    b) What are sound displays in Virtual Reality? **[6]**

    c) What is navigation and manipulation interfaces in virtual reality system? **[5]**

OR

Q8) a) Explain the graphics Rendering pipeline **[6]**

    b) Explain the applications of Virtual Reality systems. **[6]**

    c) Explain Kinematic modeling in Virtual Reality. **[5]**

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