Total No. of Questions : 8]

SEAT No. : ____

P1543

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[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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