Total No. of Questions : 8]

SEAT No. : [ ]

PA-1249

[Total No. of Pages : 2

[5925] 272

S.E. (Information Technology)

COMPUTER GRAPHICS

(2019 Pattern) (Semester - IV) (214453)

Time : 2½ Hours] ***[Max. Marks : 70***

Instructions to the candidates:

1) ***Answers : 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) Explain with diagram Cohen Sutherland line clipping algorithm. **[6]**

b) Compare homogeneous co-ordinate system and normalized co-ordinate system. **[6]**

c) Show that the Transformation matrix of reflection about line y=x is equivalent to reflection relative to x-axis followed by anticlockwise rotation of 90 degree. **[6]**

OR

Q2) a) What is the concept of vanishing point in perspective projection? Explain with diagram. **[6]**

b) Let ABCD be a rectangle window with A(20,20), B(90,20), C(90,70), D(20,70). Find the region codes for the end points & use Cohen Sutherland line clipping algorithm to clip the following line Q1Q2 with Q1(10,10) and Q2(70,60). **[6]**

c) Explain 3D reflection about XY, YZ, and XZ plane. **[6]**

Q3) a) What is Shading. Explain with diagram Constant intensity shading method. **[6]**

b) Explain CMY and HSV color models. **[6]**

c) What is a segment? How do we create it? Why do we need segments? **[5]**

OR

P.T.O.

Q4) a) Compare Gourand and Phong method of shading. **[6]**

b) What is segment? Explain the concept of segment table and display file. **[6]**

c) Explain CIE chromaticity diagram; also explain how RGB to CMY conversion is done **[5]**

Q5) a) Explain Koch curve and its application in detail. **[6]**

b) Write short notes on **[6]**

i) Morphing

ii) Design of animation sequence

c) What is fractal? Explain Hilbert curve in detail. **[6]**

OR

Q6) a) Write short notes on **[6]**

i) B-spline curve

ii) Blending function of Bezier curve

b) What are the methods of controlling animation? **[6]**

c) Explain various types of animation languages. **[6]**

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

b) Explain haptic feedback in Virtual Reality system. **[6]**

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

OR

Q8) a) Explain the behavioral modeling in Virtual Reality. **[6]**

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

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