Total No. of Questions : 8]

SEAT No. : ____

PD4102

[Total No. of Pages : 2

[6402]-62
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 indicate full marks.***
4) ***Assume suitable data, if necessary.***

Q1) a) Explain with diagram Cohen Sutherland line clipping algorithm. **[6]**

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

c) Explain rotation about arbitrary axis in 3D transformation. **[6]**

OR

Q2) a) Explain the following term with example **[6]**

i) Windowing

ii) Clipping

iii) Viewport

b) Find the normalization transformation window to viewport, with window, lower left corner at (1, 1) and upper right corner at (3, 5) onto a viewport, for entire normalizad device screen. **[6]**

c) Explain with diagram, Perspective vanishing points as 1 point, 2 point and 3 point. **[6]**

Q3) a) Explain with diagram Gourand shading algorithm in detail. **[6]**

b) What is a segment? How do we create it? Why do we need segments? **[6]**

c) Explain CMY and HSV color models. **[5]**

OR

P.T.O.

Q4) a) What is Shading? What steps are required to shade an object using Phong shading algorithm? **[6]**

b) What are various color models? Explain with diagram RGB and HLS color model. **[6]**

c) Define color gamut. Explain with diagram CIE Chromaticity Diagram. **[5]**

Q5) a) Explain Bezier curve. List its properties. **[6]**

b) Write short notes on:

i) Koch curve

ii) Frame-by-frame Animation techniques **[6]**

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) Differentiate HMD and CAVE in Virtual Reality. **[5]**

OR

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

b) What is geometric modeling in Virtual Reality? **[6]**

c) Explain gesture interfaces in Virtual Reality. **[5]**