

Total No. of Questions : 8]

SEAT No. :

PB3649

[6261]-57

[Total No. of Pages :2

S.E. (Information Technology)

COMPUTER GRAPHICS

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

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) *Neat diagrams must be drawn wherever necessary.*
- 3) *Figures to the right indicate full marks.*
- 4) *Assume suitable data if necessary.*

- Q1)** a) 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]
- b) Explain with diagram, Perspective vanishing points as 1 point, 2 point and 3 point. [6]
- c) Explain the basic transformation techniques in 3D Graphics. [6]
- i) Scaling
 - ii) Rotation
 - iii) Translation

OR

- Q2)** a) Explain 3D reflection about XY, YZ and XZ plane. [6]
- b) Let ABCD be the rectangle window with A (10,20), B (100,20), C (100,90), D (10,90). Find the region code for endpoints and use Cohen Sutherland algorithm to clip the lines P1-P2 with P1 (5,30) and P2 (70,100) and Q1-Q2 with Q1 (50,70) and Q2 (80,30). [6]
- c) Explain with diagram parallel and perspective projection. [6]
- Q3)** a) Explain with diagram Phong shading algorithm in detail. [6]
- b) What is segment? Explain the concept of segment table and display file. [6]
- c) Explain different types of light sources. Also explain specular reflection. [5]

OR

P.T.O.

- Q4)** a) What is Shading. Explain with diagram Constant intensity shading method. [6]
b) Define color gamut. Explain with diagram CIE Chromaticity Diagram. [6]
c) Explain RGB, CYM color models. [5]

- Q5)** a) Write a short note on Interpolation and approximation. [6]
b) Explain Bezier curve. List its properties. [6]
c) What are the methods of controlling animation? [6]

OR

- Q6)** 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]

- Q7)** a) What is the different usage of Virtual Reality? Explain in detail. [6]
b) What is Haptics Rendering Pipeline Modeling in Virtual Reality? [6]
c) What is kinematic modeling in a Virtual Reality? [5]

OR

- Q8)** a) What is graphics rendering pipeline in a Virtual Reality system? [6]
b) Explain gesture interfaces in Virtual Reality. [6]
c) Explain 3D position trackers. [5]

