

Total No. of Questions : 8]

SEAT No. :

PB-3636

[Total No. of Pages : 2

[6261]-43

S.E. (Computer Engineering) (AI & DS) (Computer Science & Design Engg.)

Computer Graphics

(2019 Pattern) (Semester - III) (210244)

Time : 2½ Hours]

[Max. Marks : 70

Instructions to the candidates:

1) Answer Q1 or Q2, Q3 or Q4, Q5 or Q6, Q7 or Q8.

2) Neat diagram must be drawn wherever necessary

2) Figures to the right indicate full marks.

3) Assume suitable data if necessary.

Q1) a) Differentiate between Parallel projection and Perspective Projection [4]

b) What is transformation and write transformation matrix for : [4]

i) 2-D reflection with respect to line $Y=X$

ii) 3-D rotation about Y-axis.

c) A triangle is defined by $\begin{bmatrix} 2 & 4 & 4 \\ 2 & 2 & 4 \end{bmatrix}$ Find transformed coordinates after the following transformation [8]

i) 90° rotation about the origin.

ii) Reflection about line $X = Y$

OR

Q2) a) What are the types of projection and write in brief about each type of projections [4]

b) Derive 3D transformation matrix for rotation about a principal axis. [4]

c) Perform 45° rotation of a triangle A(0, 0), B(1, 1) and C(5, 2). Find transformed coordinates after rotation, (i) About origin, (ii) About P(-. 1, 1). [8]

P.T.O.

- Q3)** a) Write short note on Warnock's Algorithm [6]
 b) Explain Halftone shading [5]
 c) Compare Gouraud shading and Phong Shading [6]
- OR
- Q4)** a) Explain Backface Detection and removal. [6]
 b) Explain and compare point source and diffuse illumination. [5]
 c) Explain the following terms with examples: [6]
 i) Color gamut
 ii) Specular Reflection
 iii) Diffuse reflection
- Q5)** a) Explain, the Bezier curve. List its properties. [4]
 b) Explain Blending function for B-spline curve [7]
 c) What are fractals? Explain Triadic Koch in detail [7]
- OR
- Q6)** a) Write a short note on interpolation and approximation [4]
 b) Explain Hilbert's curve with an example. [7]
 c) With suitable example write short note on the fractal line [7]
- Q7)** a) Explain deletion of segment with suitable example [7]
 b) Define Morphing and write the applications of Morphing [3]
 c) Explain renaming of a segment with suitable example [7]
- OR
- Q8)** a) Write a short note on motion specification methods based on [7]
 i) Geometric and kinematics information.
 ii) Specification methods based on physical information
 b) Write any three important features of NVIDIA gaming platform [3]
 c) Explain architecture of 1860 [7]

