Total No. of Questions : 8]

SEAT No. :

PA-1236

[Total No. of Pages : 2

[5925]-258

S.E. (Computer & Design Engineering)

COMPUTER GRAPHICS

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

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 diagram must be drawn wherever necessary.***
3) ***Figures to the right indicate full marks.***
4) ***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) 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). **[10]**

OR

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

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

c) A triangle is defined by $\begin{bmatrix} 2 & 4 & 4 \\ 2 & 2 & 4 \end{bmatrix}$. Find transformed coordinates after the following transformation. **[10]**

i) 90° rotation about the origin.

ii) Reflection about line X = Y

Q3) a) Explain backface detection and removal. **[6]**

b) Explain and compare point source and diffuse illumination. **[5]**

c) Compare Gauraud shading and phong shading. **[6]**

P.T.O.

OR

Q4) a) Write short note on Warnock's Algorithm **[6]**

b) Explain Halftone shading. **[5]**

c) Explain the following terms with examples: **[6]**

i) Color gamut

ii) Specular Reflection

iii) Diffuse reflection

Q5) a) Write a short note on interpolation and approximation. **[4]**

b) Explain blending function for B-spline curve. **[7]**

c) What are fractals? Explain Triadic Koch in detail. **[7]**

OR

Q6) a) Explain the Bezier curve. List its properties. **[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 architecture of *i*860 **[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 renaming of a segment with suitable example. **[7]**

◆ ◆ ◆