

Total No. of Questions : 8]

SEAT No. :

PE4271

[Total No. of Pages : 2

[6582]-43

S.E. (Computer Engineering/AIDS/Computer Science and Design Engg.)

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) Figures to the right indicates full marks.
- 3) Draw neat diagram wherever necessary.
- 4) Assume suitable data if necessary.

Q1) a) Consider a Square P(0, 0), Q(0, 10), R(10, 10), S(10, 0). Illustrate Rotation of the Square anticlockwise about fixed point R(10, 10) by an angle of 45 deg. **[6]**

b) What are the types of projection and write in brief about Perspective projection? **[6]**

c) Write transformation matrix for **[6]**

- i) 2-D Rotation clockwise direction
- ii) 2-D Scaling
- iii) 2-D translation
- iv) 2-D reflection wrt X-axis
- v) 3-D rotation about Y-axis

OR

Q2) a) Explain Parallel and Perspective projections. **[6]**

b) Given a triangle A(1,1), B(3,1), C(2,2) **[6]**

Perform SCALING as follows :

- i) $S_x = 2, S_y = 2$
- ii) $S_x = 2, S_y = 4$ Obtain the new coordinates of A, B, C.

c) Explain rotation about arbitrary point in 2D Transformations. **[6]**

Q3) a) Write a short note on **[6]**

- i) HSV color model
- ii) Properties of light

b) Explain specular reflection. Discuss its advantages. **[6]**

c) Explain Back-face Removal algorithm. **[6]**

OR

P.T.O.

- Q4)** a) Explain the CIE chromaticity diagram. [6]
b) Explain Halftone method for shading. [6]
c) Explain Painter's algorithm. [6]

- Q5)** a) Write a short note on snowflakes fractals seen in real life. [5]
b) What are fractals? Explain Triadic Koch in detail. [6]
c) Explain Interpolation and approximation in curves. [6]

OR

- Q6)** a) Explain B-Spline Curve. [5]
b) Explain the Bezier curve. List its properties. [6]
c) Explain Hilbert's curve with an example. [6]

- Q7)** a) Explain the structure of a segment table with example. [5]
b) Explain [6]
i) Design of animation sequence
ii) Key Frames
c) Discuss NVIDIA as a gaming platform in detail. [6]

OR

- Q8)** a) Write short note on Motion Specifications. [5]
b) Explain architecture of i860. [6]
c) Explain algorithm for Deletion of Segment. [6]

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