Total No. of Questions : 8]

SEAT No. :

PE4271

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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) Sx = 2, Sy = 2
ii) Sx = 2, Sy = 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]**