Paper / Subject Code: 40504 / Computer Graphics

Date - 13/12/19

S.E. (Computer) (Sem-IV) (CBS)

[Time: Three Hours] [Marks: 80]

Please check whether you have got the right question paper.

N.B: (1) Question No.1 is compulsory
(2) Attempt any three of remaining five questions
(3) Assume any suitable data if necessary and justify the same

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|---|---|---|---|
| Q 1 | a) | Define the following terms: Resolution, Aspect Ratio, Phosphorescence and Fluorescence. | 05 |
| | b) | What is the purpose of Inside-Outside Test, explain any one method. | 05 |
| | c) | Draw the diagram of CRT and explain its working. | 05 |
| | d) | What do you understand by Control points, Degree of Continuity, Local and Global control w.r.t. Curve Generation? | 05 |
| Q 2 | a) | Explain DDA Line drawing algorithm and Plot the points for line AB (A (10, 15) B (5,25) using it. | 10 |
| | b) | Explain Area subdivision algorithm for hidden surface removal. | 10 |
| Q 3 | a) | What is aliasing, how it affects the appearance of an object. Explain any two Anti-aliasing methods. | 10 |
| | b) | Explain Liang Barsky line clipping algorithm, what is its benefit over Cohen Sutherland algorithm? Clip the line with co-ordinates (5, 10) and (35, 30) against the window $(x_{min}, y_{min}) = (10, 10)$ and $(x_{max}, y_{max}) = (20, 20)$. | 10 |
| Q 4 | a) | What is shading? Explain Gouraud and Phong Shading with their pros and cons. | 10 |
| | b) | Explain what is meant by B Spline curve? State the various properties of B Spline curve. | 10 |
| Q 5 | a) | Explain Scan line polygon fill algorithm with the help of suitable diagrams. | 10 |
| | b) | Explain the steps for 2D reflection w.r.t. line y=mx and also derive a composite transformation Matrix. | 10 |
| Q 6 | | Write short notes on (any two) | 20 |
| | a) | Fractals | |
| | b) | Sweep Representation and CSG Method | |
| | c) | Bezier curve and the properties | |
| | d) | Halftone and Dithering | |

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