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Question Paper Code : X 60394

B.E./B.Tech. DEGREE EXAMINATIONS, NOV./DEC. 2020
Seventh Semester
Computer Science and Engineering
CS 2401/CS 71/10144 CS 702 – COMPUTER GRAPHICS
(Common to Information Technology)
(Regulations 2008/2010)

Time : Three Hours

Maximum : 100 Marks

Answer ALL questions

PART – A

(10×2=20 Marks)

1. Write down the shear transformation matrix.
2. Define text clipping.
3. Differentiate parallel projection from perspective projection.
4. Define viewing.
5. Draw the Colour Model HLS double cone.
6. What is dithering ?
7. What is 'Flat shading' ?
8. What are the two types of textures applied on surfaces ?
9. Where does the ray $r(t) = (4, 1, 3) + (-3, -5, -3)t$ hit the generic plane ?
10. How objects are modelled using constructive solid geometry technique ?

PART – B

(5×16=80 Marks)

11. a) Explain about Bresenham's circle generating algorithm.

(OR)

- b) Write about Cohen-Sutherland's line clipping algorithm.



12. a) i) Determine the blending function for Uniform periodic Bspline curve for $n = 4, d = 4$. (8)

ii) Explain any one visible surface identification algorithm. (8)

(OR)

b) Explain a method to rotate an object about an axis that is not parallel to the co-ordinate axis with neat block diagram and derive the transformation matrix for the same. (16)

13. a) i) Explain RGB color model in detail. (8)

ii) Explain how 3D scenes are drawn. (8)

(OR)

b) i) Discuss the computer animation techniques. (10)

ii) Explain how 3D objects are drawn. (6)

14. a) i) How are diffuse and specular components computed in a shading model ? (8)

ii) Write about Gouraud and Phong shading techniques. (8)

(OR)

b) i) How are shadows created using textures ? Discuss. (8)

ii) Present a brief discussion on 'Reflection Mapping'. (8)

15. a) i) Discuss the Ray tracing process with an example. (8)

ii) Explain how refraction of light in a transparent object changes the view of the three dimensional object. (8)

(OR)

b) Write short notes on :

i) Mandelbrot sets. (5)

ii) Fractal geometry. (5)

iii) Boolean operations on objects. (6)
