Reg. No. :

Question Paper Code: 41855

B.E. / B.Tech. DEGREE EXAMINATION, NOV 2016

Fifth Semester

Information Technology

14UIT505 - GRAPHICS WITH OPENGL

(Regulation 2014)

Duration: Three hours   Maximum: 100 Marks

Answer ALL Questions

PART A - (10 x 1 = 10 Marks)

1. The region code of a point within the window is _____

    (a) 0101   (b) 0110   (c) 0000   (d) 1000

2. The midpoint method calculates pixel positions along the_____ of a circle

    (a) circumference   (b) diameter   (c) radius   (d) chord

3. _____ is known as standard graphics objects

    (a) Octree   (b) Quadtree
    (c) Polygon surfaces   (d) Ellipsoid

4. Oblique projection with an angle of 45^0 to the horizontal plane is called as

    (a) cabinaet projection   (b) isometric projection
    (c) cavalier projection   (d) none of these

5. CMYK model are used for

    (a) computer display   (b) printing   (c) painting   (d) none of these

6. Backface removal algorithm is example of

    (a) object space   (b) image space   (c) both (a) and(b) (d) none of these

7. Constant-intensity shading is also called as

    (a) flat shading   (b) gouraud shading

    (c) phong shading   (d) fast phong shading

8. Ray casting as a variation on the

    (a) A-buffer method   (b) Oct-tree method

    (c) Scan conversion method   (d) Depth-buffer method

9. Transparent surface, in general, produces _____

    (a) Reflected light   (b) Transmitted light

    (c) Both reflected and transmitted light   (d) None of the above

10. Invariant fractal sets are formed with _____ transformations.

    (a) nonlinear   (b) linear   (c) geometric   (d) All the above

PART - B (5 x 2 = 10 Marks)

11. How do you clip a point?

12. Define quadric surface.

13. Illustrate CIE chromaticity diagram.

14. Mention about object space method.

15. Differentiate Mandelbrot and Julia sets.

PART - C (5 x 16 = 80 Marks)

16. (a) (i) Explain Bresenham's line drawing algorithm with example. (8)

    (ii) Discuss about mid-point ellipse drawing algorithm. (8)

Or

    (b) Discuss the cohen sutherland line clipping algorithm in detail. (16)

17. (a) (i) Describe depth buffer method for detection of visible surface. (8)

    (ii) Discuss about polygon tables. (8)

Or

    (b) Explain 3D rotations in details. (16)

41855

18. (a) (i) Explain HSV color model with HSV hex cone. (8)

   (ii) Write short notes on morphing and simulation acceleration. (8)

<div align="center">Or</div>

   (b) Discuss how to generate 3D objects and scenes using OpenGL. Explain with its sample coding. (16)

19. (a) (i) Brief about specular reflection. (8)

   (ii) Explain in detail about smooth shading (8)

<div align="center">Or</div>

   (b) Discuss about texture rendering. (16)

20. (a) Explain space-subdivision ray tracing method. (16)

<div align="center">Or</div>

   (b) (i) Write short notes on applying boolean operations on modeled objects to create new objects. (8)

   (ii) Brief about transparency. (8)

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41855