Reg. No. :

Question Paper Code: 45805

B.E. / B.Tech. DEGREE EXAMINATION, NOV 2018

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 midpoint method calculates pixel positions along the_____ of a circle

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

2. _____ is a label set of output primitives and its associated attributes.

    (a) Structure   (b) Function   (c) Table   (d) List

3. Perspective Projection is a method for generating a view of a _____ dimensional
    scene is to project points to the display plane alone converging paths.

    (a) three   (b) two   (c) one   (d) multi

4. The process of extracting a portion of a database or a picture, either inside or outside a
    specified region are called

    (a) Transformation   (b) Projection
    (c) Clipping   (d) Mapping

5. A raster object consists of a bitmap and is used for _____ creation.

    (a) Shape   (b) Structure   (c) Texture   (d) Node

6. A CMY color model is useful for describing color output to _____ devices.

    (a) Softcopy based   (b) Hardcopy based

    (c) Simulation based   (d) all the above

7. Shadow mask method is usually used in

    (a) LCD   (b) Raster Scan display

    (c) Random scan display   (d) DVST

8. Significant feature of GLSL is

    (a) to code shorter programs   (b) to give create good images

    (c) to give create segmented images   (d) to code larger programs

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. Write the significant features of Animation.

14. Define Rendering.

15. Differentiate Mandelbrot and Julia sets.

PART - C (5 x 16 = 80 Marks)

16. (a) Explain the midpoint circle drawing algorithm. Assume 10 cm as the radius and coordinate origin as the center of the circle. (16)

Or

    (b) Discuss the polygon clipping and Text Clipping algorithms, with example. (16)

17. (a) Explain 3D rotations in details. (16)

Or

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(b) How will you model three dimensional objects in Graphics programming? Explain this with a curved line and Spline examples. (16)

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

Or

(b) Write notes on RGB, CMY and HSV color models and its conversions. Also give its advantages. (16)

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

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

Or

(b) Explain about adding texture to faces and rendering of Texture. (16)

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

Or

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

(ii) Brief about transparency. (8)