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Question Paper Code: 45085

B.E. / B.Tech. DEGREE EXAMINATION, NOV 2017

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. Oblique projection with an angle of 45° to the horizontal plane is called as
(a) cabinet projection (b) isometric projection
(c) cavalier projection (d) none of these
4. Perspective Projection is a method for generating a view of a _____ dimensional scene is to project points to the display plane along converging paths.
(a) Three (b) Two (c) One (d) Multi
5. Backface removal algorithm is example of
(a) object space (b) image space (c) both (a) and (b) (d) none of these
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. Ray casting as a variation on the
- (a) A-buffer method (b) Oct-tree method
(c) Scan conversion method (d) Depth-buffer method
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. Invariant fractal sets are formed with _____ transformations.
- (a) Nonlinear (b) Linear (c) Geometric (d) All the above
10. _____ is used for creating images of great beauty and staggering complexity.
- (a) Julia Set (b) Z Buffer
(c) Mandelbrot set (d) Ray tracing

PART - B (5 x 2 = 10 Marks)

11. How do you clip a point?
12. List out any four 3D Issues.
13. Illustrate CIE chromaticity diagram.
14. Define Rendering.
15. Differentiate Mandelbrot and Julia sets.

PART - C (5 x 16 = 80 Marks)

16. (a) Discuss the cohen sutherland line clipping algorithm in detail. (16)
Or
(b) Explain the midpoint circle drawing algorithm. Assume 10 cm as the radius and coordinate origin as the center of the circle. (16)
17. (a) Explain 3D rotations in details. (16)
Or
(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) What is ray tracing?. Explain the setting up the geometry of Ray Tracing. (16)
