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B.E. / B.Tech. (Part Time) DEGREE END SEMESTER EXAMINATIONS, APR / MAY 2014

INFORMATION TECHNOLOGY

SIXTH SEMESTER

(REGULATIONS 2009)

PT IT 9038 – COMPUTER GRAPHICS

Time: 3 hrs

Max Mark : 100

Answer ALL Questions

Part - A (10 × 2 = 20 Marks)

1. What is the principle behind 'Mid Point Circle Drawing Algorithm'?
2. What is the significance of Homogeneous coordinates in transformations?
3. Draw the 3D viewing pipeline.
4. How is 'polygon mesh' data stored?
5. What is 'Key Frame' animation?
6. List few Basic Graphics primitives in OpenGL.
7. What are the two types of Textures used in OpenGL?
8. List the various types of Lights used in 3D Modeling.
9. Define 'Fractal Dimension'.
10. What is the principle behind 'Ray Tracing'?

Part - B (5 × 16 = 80 Marks)

11. i) Compute points on the line between [(2,2) (10,5)] using Bresenham's line drawing procedure. (8)
ii) What is Window-Viewport transformation? Discuss. (8)
12. a) i) Derive oblique projection transformation matrix. (8)

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ii) Present the 3D Transformation matrices for all standard transformations. (8)

Or

b) i) Write short notes on splines. (8)

ii) What is the need for 'visible surface identification'? Present any simple algorithm for visible surface identification. (8)

13. a) Describe about the most commonly used color models used in Computer Graphics. (16)

Or

b) Describe the architecture of OpenGL. Also give the code snippet for creating basic shapes and performing basic transformations. (16)

14. a) Describe Flat shading and Smooth Shading techniques in detail. (16)

Or

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

ii) What does the texture modulate to produce different visual effects? (8)

15. a) i) How are Peano curves produced? Give examples. (8)

ii) What are the characteristics of Mandelbrot set? (8)

Or

b) Describe how Ray Tracing handles both Reflection and Refraction of light. (16)
