Reg. No. :

Question Paper Code : 50394

B.E./B.Tech. DEGREE EXAMINATION, NOVEMBER/DECEMBER 2017

Fifth Semester

Computer Science and Engineering

CS 6504 : COMPUTER GRAPHICS

(Regulations 2013)

Time : Three Hours   Maximum : 100 Marks

Answer ALL questions

PART – A   (10×2=20 Marks)

1. List out any four input devices that are used in graphics field.

2. Give the initial decision parameter equation for Bresenham's line drawing algorithm.

3. What do you mean by shearing ?

4. Define Clipping.

5. What is a Quadric surface ?

6. Differentiate parallel projection from perspective projection.

7. How you define intensity ?

8. State Dithering technique.

9. Define animation.

10. Give different classification of fractals.

PART – B   (5×13=65 Marks)

11. a) Explain the working of DDA line drawing algorithm with the procedure and with an example.

(OR)

b) Describe the functionalities of Refresh Cathode Ray Tube with suitable diagram.

12. a) i) Discuss the working of 2D Scaling with respect to origin and with respect to fixed (pivot) point with suitable example. **(9)**

     ii) Prove that two successive translations are additive. **(4)**

        (OR)

  b) Describe how to clip the given lines using Cohen – Sutherland line clipping algorithm. Explain the above with suitable example and equations.

13. a) Determine the blending functions for cubic (i.e. n = 3) Bezier Curve and also list out the properties of the Bezier Curve.

        (OR)

  b) Demonstrate any three types of 3D rotation with equations and with sample diagrams.

14. a) Illustrate the following illumination models with suitable diagram :
Ambient Light and Diffuse Reflection.

        (OR)

  b) Discuss the following color models with suitable diagram and equations :
RGB, HSV and YIQ models.

15. a) Explain how to create a morphing effect in computer animation with suitable equations and with an example.

        (OR)

  b) Explain the purpose and working of ray tracing method with suitable diagram and also explain about ray surface intersection calculations.

                PART – C   **(1×15=15 Marks)**

16. a) Write midpoint circle algorithm and apply that algorithm to find the pixel values of the circle whose radius r = 4 and centre of the circle = (0, 0).

        (OR)

  b) Demonstrate how to clip the following polygon using Sutherland – Hodgeman Polygon clipping algorithm ?