Reg. No. : | | | | | | | | | | | | |

Question Paper Code : 52869

B.E./B.Tech. DEGREE EXAMINATIONS, APRIL/MAY 2019.

Fifth Semester

Computer Science and Engineering

CS 6504 — COMPUTER GRAPHICS

(Regulation 2013)

Time : Three hours Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. Define the term resolution.
2. How to compute the address of a location in frame buffer?
3. Mention the uses of translation and rotation with matrix representation.
4. Brief on window to viewpoint coordinate transformation.
5. What is a Quadric surface?
6. Differentiate parallel projection from perspective projection.
7. Define dithering. When does this occur?
8. Convert the given colour value to CMY colour mode where R = 0.23 G = 0.57 B = 0.11.
9. What is a scripting system ?
10. What is a turtle graphics program?

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) Explain on the following 2D transformations.

(i) General Pivot point rotation

(ii) General Fixed Point Scaling

(iii) Perform 45 degree rotation of a triangle A(90, 0), B(1,1) and C(5, 3) about P(–1,1).

Or

(b) Explain in detail the Cohen-Sutherland line clipping algorithm with an example.

13. (a) (i) Discuss about 3Dimensional display methods.

(ii) Explain in detail about quadratic surfaces.

(iii) Brief on Polygon Meshes.

Or

(b) (i) Derive the 3D transformation matrix for rotation, scaling and translation about an arbitrary axis.

(ii) Write short notes about viewing coordinates.

(iii) Differentiate parallel projection and perspective projection in detail.

14. (a) Briefly explain different color models in detail.

Or

(b) (i) Explain in detail about the properties of light and draw chromaticity diagram.

(ii) Write notes on halftone patterns and dithering techniques.

15. (a) (i) Distinguish between raster animation and key frame animation in detail.

(ii) How will you generate grammar based model? Explain.

Or

(b) Write short notes on:

(i) Ray tracing

(ii) Koch curves

(iii) Morphing

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?