

NTK/KW/15-7488

Sixth Semester B. E. (Comp. Tech.)
(C. B. S.) Examination
COMPUTER GRAPHICS

Time : Three Hours]

[Max. Marks : 80

- N. B. : (1) All questions carry marks as indicated.
(2) Solve Six questions as follows :
Que. No. 1 OR Que. No. 2.
Que. No. 3 OR Que. No. 4.
Que. No. 5 OR Que. No. 6.
Que. No. 7 OR Que. No. 8.
Que. No. 9 OR Que. No. 10.
Que. No. 11 OR Que. No. 12.
(3) Due credit will be given to neatness and adequate dimensions.
(4) Illustrate the answers with necessary figures / drawings wherever necessary.

1. (a) Define computer graphics. Explain various real world applications of computer graphics. 7
(b) Write a note on Graphics Pipeline. 6

OR

2. (a) Discuss various display devices used in computer graphics. 7
(b) Explain the working of image scanner. 6
3. (a) Write an algorithm for generating a circular arc in clockwise direction. 7
(b) Explain edge flag algorithm with example. 7

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Contd.

OR

4. (a) Explain scan line Seedfill algorithm with example. 7
(b) Explain Halftoning Techniques in detail. 7
5. (a) Consider a clipping window (1, 0), (0, 1), (0, 2), (1, 3), (2, 3), (3, 2), (3, 1), (2, 0) to clip a line P1 (-2, -4) to P2 (3, 0) using Cyrus Beck algorithm. 7
(b) Explain Bicubic and Quadratic surface. 6

OR

6. (a) Explain endpoint outcode algorithm. Write Cohen-Sutherland line clipping algorithm. 7
(b) Explain the properties of bezier curve. 6
7. (a) Reflect a triangle defined by vertices A (3, 3), B (5, 3) and C (4, 6) about a line $y = x + 2$. 7
(b) Write a note on NDC. 6

OR

8. (a) Explain viewing transformation along with the concept of window and view port. Also generate the matrices for achieving the viewing transformation. 7
(b) Write a note on shear transformation. 6
9. (a) Explain the Painter's algorithm for Hidden Surface Removal. 7

(b) Explain the 3D rotation about arbitrary axis. 7

OR

10. (a) Explain parallel and perspective projections. Also generate the matrices for the same. 7

(b) Explain Warnock's algorithm for Hidden Surface Removal. 7

11. (a) What are the various features of Open GL and how they are useful ? 7

(b) How animation can be demonstrated using Open GL ? 6

OR

12. (a) Write a note on various operations in Open GL. 7

(b) What is viewing matrix ? How it can be specified using Open GL ? 6

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