

U.G. 6th Semester Examination - 2022

COMPUTER SCIENCE

[HONOURS]

Course Code : COM.SC-H-CC-L-614

Full Marks : 60

Time : $2\frac{1}{2}$ Hours

The figures in the right-hand margin indicate marks.

Candidates are required to give their answers in their own words as far as practicable.

GROUP-A

1. Answer any **ten** questions from the following:

2×10=20

- a) What is scaling?
- b) What is viewport?
- c) What is non-impact printer?
- d) What is repositioning problem in scaling?
- e) What is the role of accelerating anode in CRT?
- f) What is horizontal retrace?
- g) What is bitmap font?
- h) What is mirror reflection?
- i) What is region filling?
- j) What are the disadvantages of flood fill algorithm?

- k) What is aliasing effect?
- l) What is pixel?
- m) What is clipping?
- n) What is homogeneous transformation matrix?
- o) What is polygon filling?

GROUP-B

Answer any **four** questions :

5×4=20

- 2. Describe the steps in Bresenham's line drawing algorithm. 5
- 3. Write the steps of Liang-Barsky line clipping algorithm. 5
- 4. Differentiate between Hermite-spline and Natural-spline. 5
- 5. Describe the steps of midpoint ellipse drawing algorithm. 5
- 6. Write a flood fill procedure to fill an 8-connected region. 5
- 7. Explain the 2D rotation of a point object about an arbitrary point. 5

[Turn over]

GROUP-C

Answer any **two** questions : $10 \times 2 = 20$

8. a) Briefly discuss the window to viewport transformation? What is viewing pipeline?

b) Discuss about uniform scaling and successive translation as matrix multiplication form.

$(2+2)+6$

9. a) Briefly discuss about shadow mask and beam penetration methods.

b) Write down the working principle of Dot-Matrix printer.

$5+5$

10. a) Discuss the B-spline curve.

b) What is Bezier surface? Discuss about Hermite spline.

$3+(3+4)$

11. Write short notes on any **two** of the following:

$5 \times 2 = 10$

a) DDA line drawing algorithm

b) Fractal

c) Cathode Ray Tube

d) Cohen-Sutherland line clipping algorithm.