

Total Pages – 3

B.Sc. RNLKWC-/C14T/22

2022

COMPUTER SCIENCE

B.Sc. Sixth Semester End Examination - 2022

Paper - C14T

Full Marks : 40

Time : 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.
Illustrate the answers wherever necessary.*

Group - A

1. Answer any 5 questions 5×2=10
- a) What is resolution in computer graphics?
 - b) Write differences between Raster scan and Random scan displays.
 - c) What do you mean by window and view port?

(Turn Over)

(2)

- d) What is aspect ratio? 2
- e) Compare DDA with Bresenham's line drawing algorithm. 2
- f) What is the need for a graphics device driver? 2
- g) Write about pixel and frame buffer. 2
- h) Explain how does world co-ordinate system convert to screen co-ordinate system. 2

Group - B

(Answer any 4 questions) 4×5=20

- 2. Describe computer graphics and its applications in animation. 5
- 3. Differentiate parallel and perspective projections and derive projection matrices. 2+3
- 4. Compare Boundary fill algorithm with flood fill algorithm. 5
- 5. Derive transformation matrix for 2D viewing transformation. 5
- 6. Explain Bresenham's line drawing algorithm. 5

(3)

- 7. Write a short note on Midpoint Ellipse Algorithm. 5

Group - C

(Answer any one Question) 1×10=10

- 8. Give midpoint circle generation algorithm. Explain with suitable examples. 7+3
- 9. (a) Derive the general perspective transformation onto a plane with reference point $R_0(x_0, y_0, z_0)$, normal vector.

$N=n_1I+n_2J+n_3K$, using C (a,b,c) as the centre of projection.

- b) What are homogeneous co-ordinates? What role do they play in composite transformations? 6+4