



বিদ্যাসাগর বিশ্ববিদ্যালয়
VIDYASAGAR UNIVERSITY

Question Paper

B.Sc. Honours Examination 2022

(Under CBCS Pattern)

Semester - VI

Subject: COMPUTER SCIENCE

Paper: C 14 - T

Full Marks : 40

Time : 2 Hours

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

The figures in the margin indicate full marks.

COMPUTER GRAPHICS

Answer any *four* questions :

5×4=20

1. Differentiate between Flood Fill and Boundary Fill algorithms. 5
2. Using the midpoint ellipse drawing algorithm, draw an ellipse with a radius of 8 units and centered at (10, 10). 3+2
3. Using the Bresenham circle drawing algorithm, draw a circle with a radius of units. 3+2
4. Show how reflections in the line $y = x$ and in the line $y = -x$ can be performed by a scaling operation followed by a rotation. 5
5. Explain the midpoint line drawing algorithm with a proper example. 3+2

6. Suppose a window has its lowest left corner at $(-3, -2)$ and its upper-right corner at $(4, 2)$. Find the visible portion of a line joining points $(-4, 2)$ and $(3, 5)$ using the Cohen Sutherland line clipping algorithm. 5

Answer any *two* questions :

10×2=20

7. Derive Mid-Point circle drawing algorithm. Using the Mid-point circle drawing algorithm draw a circle with a radius of 10 units. 7+3
8. Explain the reflection of a 2D figure on $y=mx + c$. Derive its component matrix. 5+5
9. Explain the DDA Line drawing algorithm with an example. 6+4
10. Derive the transformation matrix for rotation about any axis. What is homogeneous co-ordinate ? Why is a homogeneous co-ordinate system needed in transformation matrix ? 5+2+3
