

**Tribhuvan University
Institute of Science and Technology**

2072

Bachelor Level/ First Year/ First Semester/ Science

Computer Science and Information Technology (CSc. 254)

(Computer Graphics)

Full Marks: 60

Pass Marks: 24

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

The figures in the margin indicate full marks.

Attempt all the questions.

1. What is computer graphics? Briefly explain its applications.
2. Use Brenham's algorithm to draw a line having end points (25, 20) and (15, 20).
3. Construct the Bezier curve of order 3 and with 4 polygon vertices A (1, 1) B (2, 3) C (4, 3) and D (6, 4).
4. Derive midpoint circle algorithm.
5. Difference flood fill and boundary fill methods.
6. Explain the following term with practical applications.
 - a) 2D shearing
 - b) 3D viewing
7. What do you mean by homogenous coordinates? Rotate a triangle A(5,6),B(6,2) and C(4,1) by 45 degree about an arbitrary pivot point (3,3).

OR

Explain in detail about Diffuse Reflection model.

8. What is projection? Differentiate between parallel a perspective projection.
9. Given a clipping window P(0,0) , Q(30,0),R(30,20),S(0,20) use the Cohen Sutherland algorithm to determine the visible portion of the line A(10,30) and B(40,0).
10. Explain the basic steps for computer animation and its application in computer science.