

**Tribhuvan University
Institute of Science and Technology**

2066

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 a computer graphics? Explain in detail about the application of computer Graphics.
2. Derive the window to viewport transformation coefficient matrix. Explain the application of this matrix.
3. Explain the following term with practical applications.
 - (a) 3D Rotation
 - (b) 2D Shear
4. Explain in detail about line clipping algorithm and its applications.
5. What is a digital differential analyzer (DDA)? How can you draw the line using this algorithm?
6. How can you represent 3D object? How can you draw the line using this algorithm?
7. How curves be generated? Explain it with any suitable algorithm.
8. Explain in detail about plane equation method. Explain which algorithm is better for hidden surface removal.

OR

Explain in detail about depth buffer method. Justify that is better than plane equation method

9. Consider 256 pixel X 256 scan lines image with 24-bit true color. If 10 minutes video is required to capture, calculate the total memory required? Why intensity assignment is required?
10. Why shading is required in the computer graphics? Explain in detail about constant intensity shading.

OR

List the different type of shading models. Explain in detail about Gouraud shading model.