LUMBINI ADARSHA DEGREE COLLEGE

2025

Bachelor in Information Technology (B.I.T.)/Fifth Semester/Mid Term

Time: 03:00 hrs. Full Marks: 80/Pass Marks:

BIT352CO: Computer Graphics *(New Course)*

Candidates are requested to give their answer in their own words as far as practicable. Figure in the margin indicate full marks.

Group A

Answer TWO questions. 2x12=24

1. Define transformation. Derive the matrix forms for 2D translation, scaling, and rotation with examples.
2. Derive Bresenham's Line Drawing Algorithm for a line with a positive slope ($0 < m < 1$). Explain the decision parameter and how it optimizes pixel selection.
3. Discuss various hidden surface removal techniques. Compare Back-Face Detection, Z-buffer, and A-buffer methods in terms of efficiency and use-cases.

Group B

Answer SEVEN questions. 7x8=56

4. Define shading. Compare Constant, Gouraud, and Phong shading models in detail.
5. Explain the evolution of computer graphics from its early development to modern-day applications. How Computer Graphics is applicable in Movies and Entertainment.
6. Compare RGB and CMYK color models in terms of their use in computer graphics. When is each model typically used?
7. Using the DDA algorithm, plot a line from (1, 2) to (7, 5). Show each step with calculations.
8. What is 2D viewing transformation? List the steps to convert world to screen coordinates.
9. Define reflection in terms of computer graphics. Reflect the object with vertices at (0, 0, 0), (2, 3, 0), and (5, 0, 4) about the plane Y = 5. Show the transformed coordinates.
10. What are the current trends in computer graphics and animation? How does OpenGL support these trends? Compare PHIGS and GKS.
11. Write short notes on(Any Two):

    a. Scan-Line method.

    b. Pivot-point rotation.

    c. Bezier curve.

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