

# 2002 SCHEME

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CS63

**Sixth Semester B.E. Degree Examination, December 2010**

## Computer Graphics

Time: 3 hrs.

Max. Marks:100

**Note: Answer any FIVE full questions.**

- 1 a. Explain the conceptual framework for interactive graphics, with a neat block diagram. (10 Marks)  
b. Explain the various representative uses of computer graphics, in detail. (10 Marks)
- 2 a. Briefly explain the Bresenham's midpoint line scan conversion algorithm. Derive the expressions for decision variables. (12 Marks)  
b. Briefly explain the basic methods used for drawing thick primitives. (08 Marks)
- 3 a. Give the Cohen-Sutherland line clipping algorithm (psedocode). (10 Marks)  
b. Briefly explain and give the Sutherland-Hodgeman polygon clipping algorithm (psedocode). (10 Marks)
- 4 a. Explain the steps involved in transformation from a world co-ordinate window to screen co-ordinate viewport. Also get the composite transformation matrix. (10 Marks)  
b. Find the transformation matrix, that transforms the given square A B C D to half its size, with centre still remaining at the same position. The co-ordinates of square are A (1, 1), B(3, 1), C(3,3) and D(1, 3)and centre at (2, 2). Also find the resultant co-ordinates of the square. (10 Marks)
- 5 a. Write the homogeneous co-ordinate transformation matrices for the three basic 3D transformations. (10 Marks)  
b. Give the classification of planar geometric projections. With neat sketches, explain the orthographic and oblique parallel projections. (10 Marks)
- 6 a. Briefly explain the three common styles for user-computer interfaces. (10 Marks)  
b. List the properties of B-spline curves. (10 Marks)
- 7 a. Explain the Z-buffer algorithm for the removal of hidden surfaces, with a psedocode. (10 Marks)  
b. Explain the Warnock's area subdivision algorithm. (10 Marks)
- 8 Write short notes on :
  - a. Octrees
  - b. Rubber band construction technique
  - c. Character generation methods
  - d. Fractal geometry methods. (20 Marks)

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Important Note : 1. On completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages.  
2. Any revealing of identification, appeal to evaluator and /or equations written eg, 42+8 = 50, will be treated as malpractice.

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