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MCA-403

MCA. IV Semester

Examination, December 2016

Computer Graphics and Multimedia

Time : Three Hours

Maximum Marks : 70

Note: i) Answer five questions. In each question part A, B, C is compulsory and D part has internal choice.

ii) All parts of each question are to be attempted at one place.

iii) All questions carry equal marks, out of which part A and B (Max. 50 words) carry 2 marks, part C (Max. 100 words) carry 3 marks, part D (Max. 400 words) carry 7 marks.

iv) Except numericals, Derivation, Design and Drawing etc.

Unit-I

1. a) What are the Interactive Input devices?

   b) What is frame buffer? Write its functions.

   c) Plot the circle whose radius is 10 units using mid point circle algorithm.

   d) Derive Bresenham's line drawing algorithm for lines with. slope < 1.

OR

Plot a line from (1, 1) to (5, 3) using DDA algorithm.

Unit-II

2. a) What is aliasing and antialiasing?

   b) What are the attributes of output primitives?

   c) Explain boundary fill algorithm.

   d) Derive the transformation matrix to magnify the triangle. A (0, 0), B (1, 2), C (3, 2) to twice its size so that the point C (3, 2) remain fixed.

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OR

Explain the steps used in rotation of object about arbitrary point and derive the matrix for the same.

Unit-III

3. a) What is viewing transformations?

   b) What is shading? Explain Gauraud shading.

   c) Explain the color models briefly.

   d) Explain Cohen Sutherland line clipping algorithm with example.

OR

Derive the transformation matrix for windowing to viewing transformation.

Unit-IV

4. a) Differentiate between parallel and perspective projection.

   b) What is depth buffer algorithm?

   c) Derive the rotation matrix about an arbitrary axis.

   d) State the properties of Bezier curve and explain how Bezier surface can be generated from Bezier curve.

OR

Explain Hidden surface elimination algorithm.

Unit-V

5. a) What is SCSI?

   b) What are hardware used for multimedia?

   c) Write the Audio file formats.

   d) How are multimedia and virtual reality related? State the components that connect between two.

OR

Explain multimedia authoring tools briefly.

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