

CS - 504
B.E. V Semester
Examination, December 2014
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 questions 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) Write the Bresenham line algorithm.
- b) How long would it take to load a 1280 x 1024 frame buffer with 24 bit per pixel, if 10' bits can be transferred per second?
- c) Distinguish between raster scan and random scan system.
- d) Apply midpoint circle drawing algorithm to draw a circle of radius 8.

OR

Explain the design issues in color CRT monitor.

Unit - II

2. a) What are the new coordinates of the point P (2, - 4) after rotating 30° about the origin?
- b) Differentiate between world coordinate system and screen coordinate system.
- c) Describe the transformation used in magnification and reduction with respect to the origin.
- d) Explain Cohen-Sutherland clipping algorithm with an example.

OR

Show that the transformation matrix for a reflection about the line $y = -x$ is equivalent to a reflection relative to the y-axis followed by a counter clockwise rotation of 90°.

Unit - III

3. a) How are back faces detected and why do we need to remove them?
- b) Write the properties of Bezier curves?
- c) Differentiate between phong shading and Gouraud shading.
- d) Consider a line segment AB with end point A(4, 3, 2) and B(8, 3, 2). Find out perspective projection of AB onto the plane $x = 0$ from the centre of projection at $x = -4$.

OR

Describe in brief the application of computer graphics in removal of hidden surfaces. Describe depth buffer algorithm for displaying the visible surfaces of a number of objects.

Unit - IV

4. a) Compare digital audio and MIDI data.
- b) What are the components of multimedia systems?
- c) What are different types of authoring tools in multimedia? Discuss each in brief
- d) Discuss the various image and sound file formats in multimedia.

OR

Write short notes:

- i) Digital video ii) Sound cards iii) Video color spaces

Unit - V

5. a) Write the principle of Animation?
- b) What steps are involved in compression of images?
- c) Distinguish between lossy and lossless compression?
- d) Describe the basic architecture of a multimedia database. OR

What is Direct X? Mention in brief the functions of the components of Microsoft Direct X.