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 ofwhich 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 Brcsenham 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 ;hie 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 ofAnimation?

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.