

Total number of printed pages – 4 B. Tech

BCSE 3401/PEBM 8411

Seventh Semester Examination – 2008

COMPUTER GRAPHICS AND MULTIMEDIA

Full Marks – 70

Time – 3 Hours

Answer Question No. 1 which is compulsory  
and any five from the rest.

The figures in the right-hand margin  
indicate marks.

1. Answer all questions : 2×10
  - (a) What is the storage requirement for a  $1024 \times 1280 \times 24$  resolution picture for a 30 second animated film sequence at video rates of 30 frames per seconds ?
  - (b) Explain briefly the characteristics of phosphor.

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- (c) What are the main limitations of line drawing algorithm ?
- (d) What are the tests to ascertain a polygon P obscures Q ?
- (e) What are the advantages and disadvantages of command line and graphical user interface ?
- (f) What is the difference between halftoning and dithering ?
- (g) Give at least one example for each of the following :  
line drawing and raster display devices.
- (h) What is the difference between a bitmap and a pixel map ?
- (i) Explain the difference between Gouraud and Phong shading.
- (j) Write the set of equations for rotational transformations.
2. (a) Illustrate the Bresenham's line generation algorithm. 5
- (b) Explain how antialiasing can be incorporated in above algorithm. 5
3. (a) What parameters are to be considered in designing graphic function that align text? Develop the functions and show how they can be used. 5
- (b) Explain how device independence can be achieved by using display file. 5
4. Illustrate the difference between the mid-point subdivision and Cohen Sutherland line-clipping algorithm with the help of an example. 10
5. (a) Distinguish between parallel and perspective projections. Develop transformation matrix for standard parallel projection. 5
- (b) How is the Z buffer used to make closer objects display in front of farther ones ? 5
6. (a) Write some of the important properties of Bezier curve. 3

- (b) Draw the Bezier curve using a set of control points  $(0,1)$ ,  $(2,5)$ ,  $(5,5)$  and  $(8,0)$ .  
3
- (c) Test the local and global control property over this curve.  
4
7. (a) Explain back face removal algorithm for hidden surface elimination.  
5
- (b) Discuss the advantages and disadvantages of using command line and graphical user interface. Give example of operating systems that support above user interfaces.  
5
8. (a) What do you understand by the multimedia conferences? Justify that increase in data rate for multimedia conference is important.  
5
- (b) Explain the difference between JPEG and MPEG standard with examples.  
5