CS402: Computer Graphics, Spring 22

Assignment 1: on Display technology and Colors

Multiple Choice Questions

1. What will be the resolution (in ppf.) of 3 × 3 inch image that has768 × 768 pixels?

   (a)256 (b) 254 (c) 255 (d) None of these

2. What will be the CMY co-ordinates of a color at (0-2, 1, 0-5) in the RGB space?

   (a) (0-4, 0-2, 0-3) (b) (0-8, 0, 0-3) (c) (0-8, 0, 0-5)
   (d) (0-4, 0, 0-5)

3. If 3-byte pixel values are used in a 24-bit look up table representation, how many bytes does the table occupy?

   (a) Resolution (b) Attenuation (c) Persistence (d) None of these

4. What is the name of the path the electron beam takes when returning to the left side of the CRT screen?

   (a) Vertical retrace (b) Vertical entrance (c) Horizontal retrace (d) Horizontal comeback

5. Refreshing on raster scan displays is carried out at the rate of

   (a) 60 to 80 frames per sec (b) 40 to 60 frames per sec (c) 30 to 60 frames per sec
   (d) None of these.

6. The maximum number of points that can be displayed without overlap on a CRT is referred to as:

   (a) Resolution (b) Attenuation (c) Persistence (d) None of these

Short Answer Type

1. What is persistence? Why is the electron beam allowed to over scan?
2. Differentiate between Raster scan and Random scan displays.
3. What do you mean by raster scan and random scan system?
4. What is aspect ratio? Give examples
5. Explain briefly the RGB and CMY color model.
6. Give examples of some Graphics devices.
7. What do we mean by resolution of an image?
8. Compute the size of a 640 × 480 image at 240 pixels per inch.
9. Find the CMY coordinates of a color at (0.2, 1 , 0.5) in the RGB space.
10. Explain shadow mask methods for color monitor.
11. What Is Flicker? How can this be reduced?

Write short notes on:

Shadow masking; Interlacing; Cathode Ray Tube (CRT); Resolution; Aspect ratio; Refresh rate; Bit plane

Descriptive Questions

1. State some of the major applications of graphics in real life. Name a few graphics software's.
2. Briefly describe the main functional components and its functions of a CRT terminal with a proper diagram.
3. Consider the three different raster systems, systems with resolution of 640 × 480, 1280 × 1024 and 2560 × 2048.
   A. What size of the frame buffers is needed for each of these systems to store 12-bits per pixel?
   B. How much storage is required for each system if 24-bits per pixel are to be stored?
4. Suppose a raster system with resolution 640 by 480.
   A. a. How many pixels could be accessed per second in this system if the display controller refresh rate is 60 Hz?
   B. b. What is the access time per pixel in this system?