CRT and LCD Displays
CRT – Cathode Ray Tube
CRT – Cathode Ray Tube

1. Electron guns
2. Electron beams
3. Focusing coils
4. Deflection coils
5. Anode connection
6. Mask for separating beams for red, green, and blue part of displayed image
7. Phosphor layer with red, green, and blue zones
8. Close-up of the phosphor-coated inner side of the screen
CRT – Cathode Ray Tube

- Electron Gun
CRT – Cathode Ray Tube

- **Shadow-mask**
  
  A **shadow mask** is a thin metal screen filled with very small holes. Three electron beams pass through the holes to focus on a single point on a CRT displays' phosphor surface. The shadow mask helps to control the electron beams so that the beams strike the correct phosphor at just the right intensity to create the desired colors and image on the display. The unwanted beams are blocked or "shadowed."
Aperture-grill
Monitors based on the Trinitron technology, which was pioneered by Sony, use an **aperture-grill** instead of a shadow-mask type of tube. The aperture grill consists of tiny vertical wires. Electron beams pass through the aperture grill to illuminate the phosphor on the faceplate. Most aperture-grill monitors have a flat faceplate and tend to represent a less distorted image over the entire surface of the display than the curved faceplate of a shadow-mask CRT. However, aperture-grill displays are normally more expensive.
LCD - **liquid crystal display**

- LCD displays use two sheets of polarizing material with a liquid crystal solution between them. An electric current passed through the liquid causes the crystals to align so that light cannot pass through them. Each crystal, therefore, is like a shutter, either allowing light to pass through or blocking the light.

- Color LCD displays use two basic techniques for producing color:
  - *Passive matrix* - less expensive
  - *thin film transistor (TFT)* or *active-matrix*, produces color images that are as sharp as traditional *CRT* displays, but the technology is expensive.
LCD – Liquid Crystal Displays

Basic Operation

Sub Pixel of a Colour LCD

glass plates
vertical filter
crystal molecule
horizontal filter
colour filter
LCD Screen
Operation of LCD Screen
Printers
Assignment

Explain the techniques used in following types of printers.

- Laser printers
- Inkjet printers
- Dot Matrix printers

Report should contain more than 500 words
Directly coping from sources will not be allowed
Deadline – 27\textsuperscript{th} August 2010