

## **ASSIGNMENT-1**

**SUBJECT - Computer Graphics and Multimedia**

**CODE - CSL0501**

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### **Q1. Discuss popular application of C.G.**

1. **Presentation Graphics:** - For the preparation of reports or summarising the financial, statistical, mathematical, scientific, economic data for research reports, managerial reports, moreover creation of bar graphs, pie charts, time chart, can be done using the tools present in computer graphics.
2. **Entertainment:** - Computer graphics finds a major part of its utility in the movie industry and game industry. Used for creating motion pictures , music video, television shows, cartoon animation films. In the game industry where focus and interactivity are the key players, computer graphics helps in providing such features in the efficient way.
3. **Education:-** Computer generated models are extremely useful for teaching huge number of concepts and fundamentals in an easy to understand and learn manner. Using computer graphics many educational models can be created through which more interest can be generated among the students regarding the subject.
4. **Training:** - Specialised system for training like simulators can be used for training the candidates in a way that can be grasped in a short span of time with better understanding. Creation of training modules using computer graphics is simple and very useful.
5. **Visualisation:** - Today the need of visualise things have increased drastically, the need of visualisation can be seen in many advance technologies , data visualisation helps in finding insights of the data.

## **Q2. Differentiate between Random and Raster Scan System?**

Random Scan and Raster Scan are two methods used for displaying images on a screen, each with its own characteristics and applications:

### **Raster Scan:**

**Process:** In a raster scan system, the electron beam moves from left to right and top to bottom, covering the entire screen systematically, like a typewriter. It draws one horizontal line (a raster) at a time.

**Resolution:** It has a fixed resolution determined by the number of horizontal and vertical pixels on the screen.

**Display:** Raster scan is suitable for displaying complex images, photographs, and detailed graphics. It's the standard method for modern computer monitors and LCD screens.

**Efficiency:** It is efficient for continuously displaying images but may require more memory and processing power for complex graphics.

### **Random Scan (Vector Display):**

**Process:** In a random scan system, the electron beam directly addresses and illuminates points on the screen. It doesn't scan the entire screen systematically but moves to specific points as needed.

**Resolution:** The resolution is not fixed and depends on the precision of the positioning system. It's typically lower than raster scan displays.

**Display:** Random scan is suitable for displaying simple vector graphics and text. It was popular in early computer systems and oscilloscopes.

**Efficiency:** It is efficient for drawing and updating individual lines and shapes but less efficient for displaying complex images or photographs.

### Q3 Write short notes on CRT architecture with its neat and clean diagram?

Cathode Ray Tube (CRT) architecture is the basis for traditional television and computer monitors. It consists of several key components, and below is a brief description along with a simplified diagram:

**Electron Gun:** At the back of the CRT, there is an electron gun that emits a stream of electrons.

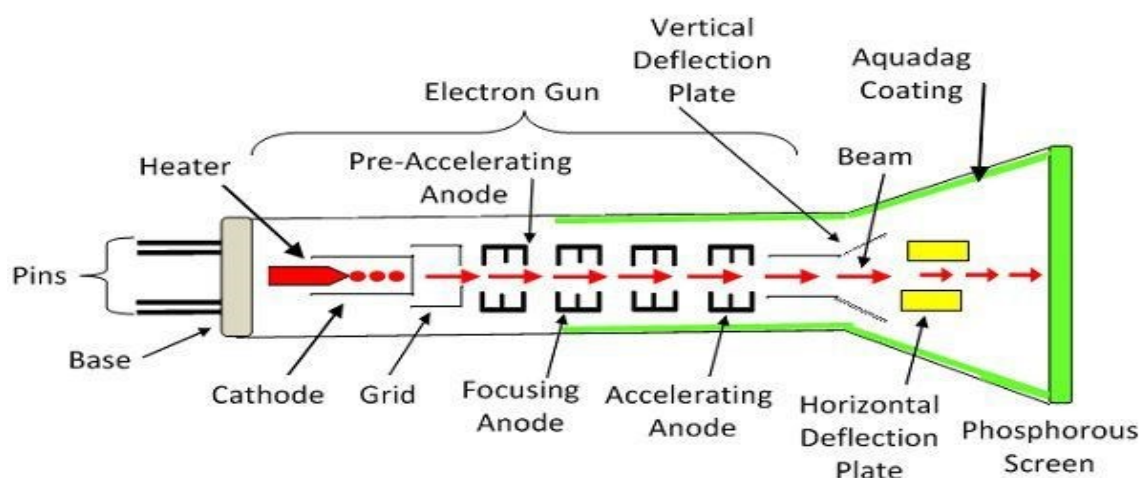
**Electron Beams:** These electrons are accelerated and focused into three separate electron beams: one for red, one for green, and one for blue. These beams are precisely controlled.

**Shadow Mask/Phosphor Screen:** In color CRTs, there's a shadow mask or aperture grille, which is positioned in front of the phosphor-coated screen. This mask ensures that the electron beams strike the correct phosphor dots on the screen.

**Phosphor Dots:** The inside of the CRT screen is coated with tiny phosphor dots that emit light when struck by the electron beams. Different phosphors emit different colors, typically red, green, and blue.

**Deflection Coils:** These are electromagnetic coils positioned around the neck of the CRT. They control the horizontal and vertical movement of the electron beams, allowing them to scan across the screen.

**Control Electronics:** The CRT is controlled by electronics that determine the intensity and timing of the electron beams, creating the images on the screen.



**Cathode Ray Tube**

Circuit Globe

#### **Q4. Differentiate between graphical and non-graphical input devices.**

Graphical and non-graphical input devices serve distinct purposes in computing by allowing users to interact with computers in different ways:

##### **Graphical Input Devices:**

Examples: Graphics tablets, touchscreens, and stylus pens are graphical input devices.

Function: They enable users to create and manipulate visual content directly. For example, in digital art, a stylus on a graphics tablet allows artists to draw and design with precision.

Applications: Graphic input devices are crucial for tasks like digital drawing, graphic design, and architectural drafting, where precise and artistic control is required.

Interaction: They facilitate direct and intuitive interaction with the screen or surface, making them ideal for creative and design-oriented tasks.

Output: Typically, they provide visual output and often work in tandem with graphical software.

##### **Non-Graphical Input Devices:**

Examples: Keyboards, mice, and barcode scanners are non-graphical input devices.

Function: These devices are designed primarily for text-based or command-based input and navigation. Keyboards are used for typing text, while mice are used for pointing and clicking.

Applications: Non-graphical input devices are essential for general computing tasks, such as word processing, data entry, web browsing, and system navigation.

Interaction: They provide indirect interaction with the computer, relying on textual or symbolic input methods.

Output: They are not typically involved in generating visual content directly but contribute to various tasks that may have graphical output.