Computer Graphics and Animation L-2
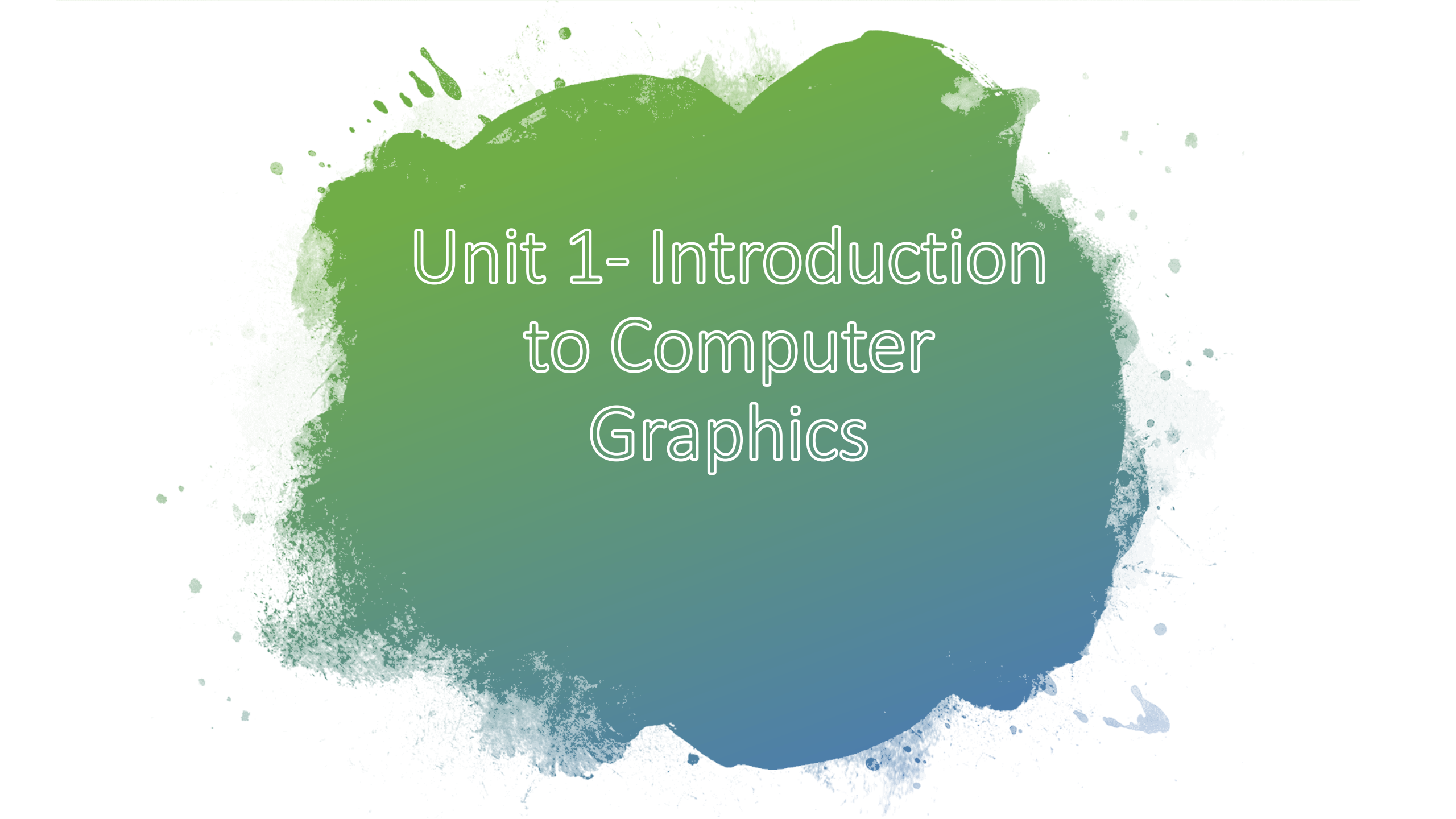
Semester IV

Faculty: Rohini D, Madhavi A

Unit 1- Introduction to Computer Graphics

Chapter 1

Introduction

Applications & Software

Graphics Devices
- Input Devices
- Active & Passive Graphics Devices

Display Technologies

Storage Tube Graphics display

Calligraphic Refresh Graphics Display

Raster-Refresh Graphics Display (Raster-Scan)

Cathode Ray Tube

Color CRT Raster Scan Display Processor

LCD Displays

Computer Graphics

Field of science concerned with digitally synthesizing and manipulating the visual content.

creating,	Storing	Displaying	manipulating images

Focus on mathematical & computational foundations of image generations.

Manipulation of visual & geometric information using computational techniques.

Application of Computer Graphics

Education and Training

Visual and Special effects

Digital art

Video games

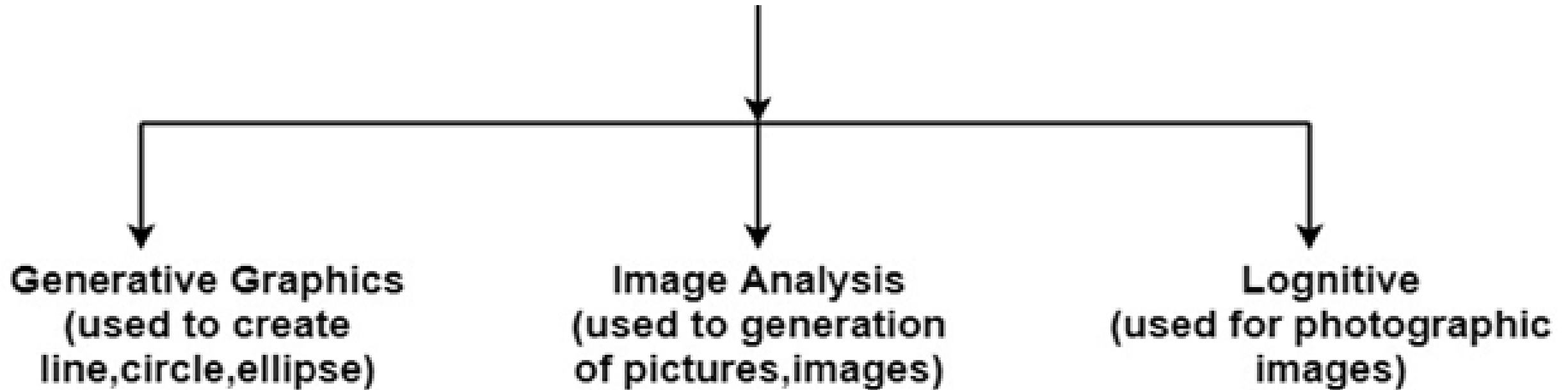**Computer aided design**

Medical imaging

Printing Technology

Entertainment

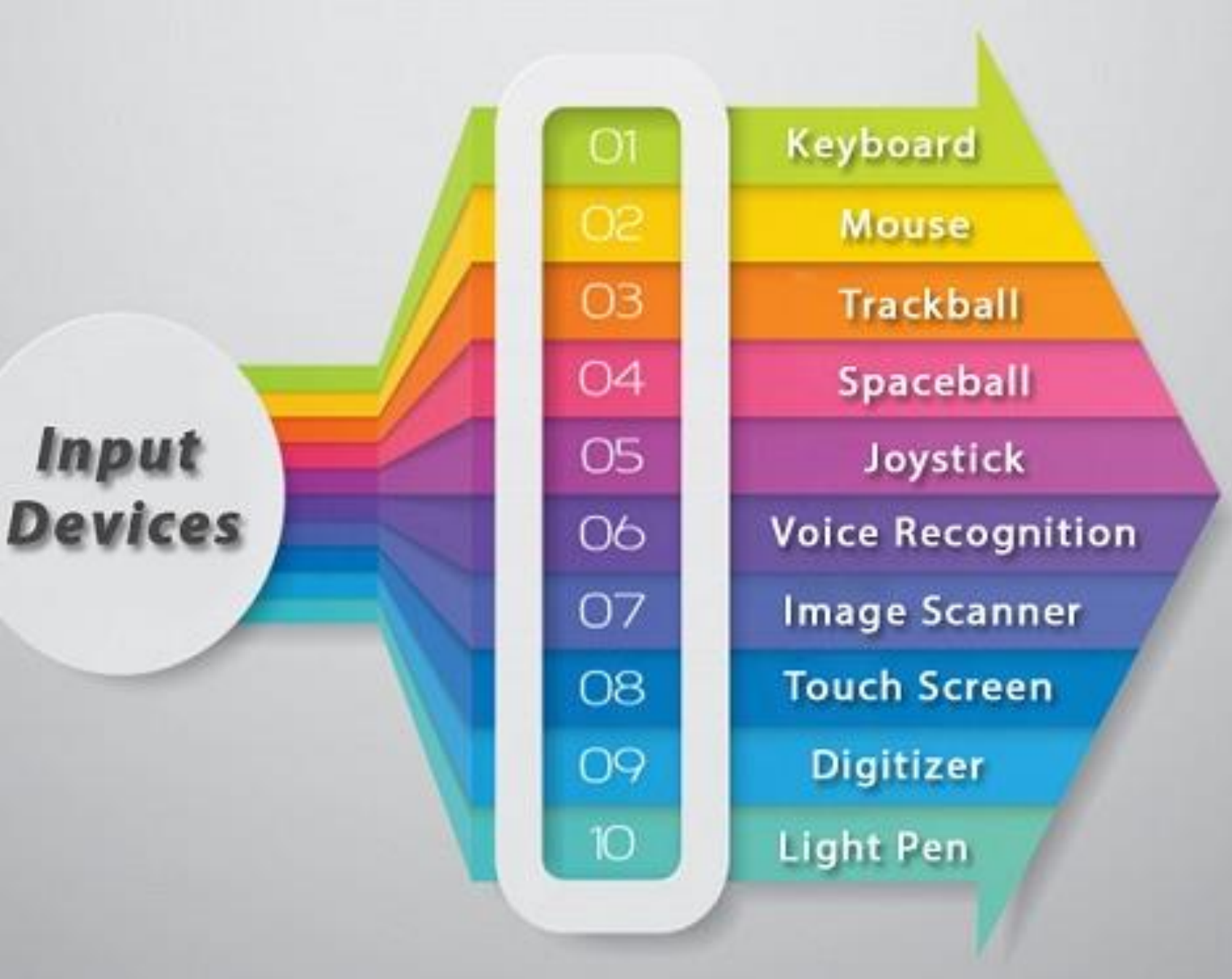**Presentation Graphics**

- Financial Reports
- Statistical Reports
- Mathematical Reports
- Scientific Reports

Use of Computer Graphics

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Generative Graphics
(used to create
line,circle,ellipse)

Image Analysis
(used to generation
of pictures,images)

Lognitive
(used for photographic
images)

Input devices

- **H**ardware that is used to transfer transfers input to the computer.

- **d**ata can be in the form of text, graphics, sound, and video.

- **O**utput device display data from the memory of the computer.

- **O**utput can be text, numeric data, line, polygon, and other objects.
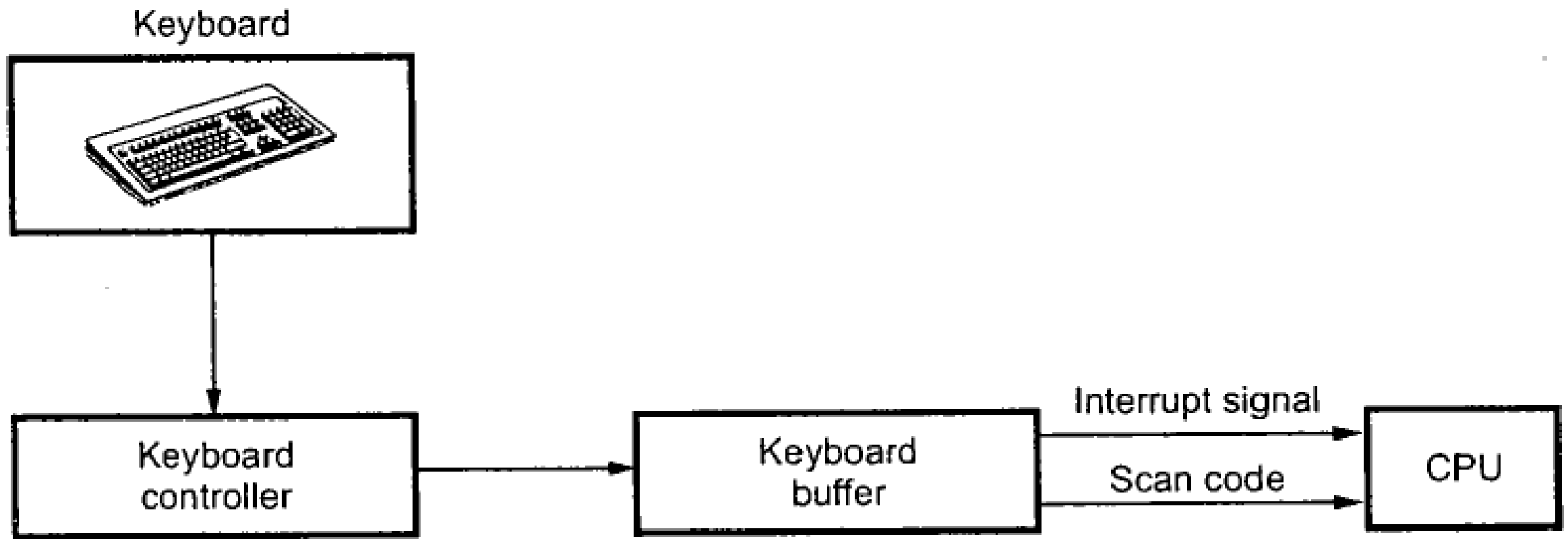
Keyboard

Mouse and JoyStick

Mouse

- Palm sized box used to position the screen cursor.
- A Mouse is a pointing device and used to position the pointer on the screen.
- The movement of the mouse along the x-axis helps in the horizontal movement of the cursor and the movement along the y-axis helps in the vertical movement of the cursor on the screen.
- The mouse cannot be used to enter text.

Joystick

- Small, vertical lever (Stick) mounted on the base & used to steer the screen cursor around.

Data Glove and Digitizer

- Data Glove
  - Used to grasp virtual object
  - Series of sensors

  - Digitizer/Graphical Tablet:
    - Applications such as tracing
    - Consists of flat surface
    - With a movable stylus

- **Trackball**

- It is a pointing device and similar to a mouse.

- It is mainly used in notebook or laptop computer, instead of a mouse.

- It is a ball which is half inserted, and by changing fingers on the ball, the pointer can be moved.

- **Spaceball**

- It is similar to trackball, but it can move in six directions where trackball can move in two directions only.

- The movement is recorded by the strain gauge. Strain gauge is applied with pressure.

- It can be pushed and pulled in various directions. The ball has a diameter around 7.5 cm.

- The ball is mounted in the base using rollers. One-third of the ball is an inside box, the rest is outside.

Image Scanner

- Used to store drawings, graphs, photos or text available in printed form for computer processing.

- Flatbed-scanners, Sheet-fed scanners, Handheld Scanners, Drum Scanners.
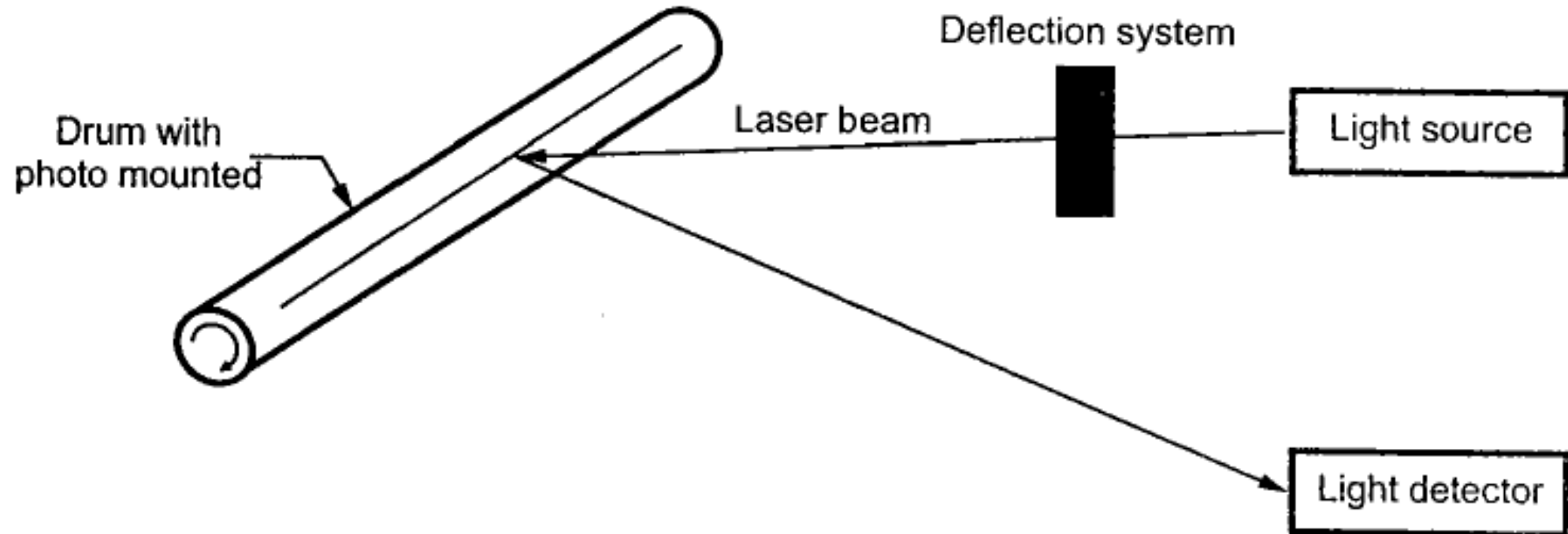
Types of Image Scanners

- Flatbed Scanner
- Sheet-fed Scanner
- Handheld Scanner
- Drum Scanner

Touch Panels, Light Pens, Voice Systems

- Touch Panels:
  - It allows displayed objects or screen positions to be selected with the touch of a finger.
- Light Pens:
  - Its pencil shaped device used to select positions by detecting the light coming from points on the CRT screen.
- Voice Systems:
  - Used as input devices to accept voice commands.
  - Classified according to the system is trained to recognize waveforms of a particular speaker.

Quiz- https://tinyurl.com/yxzqyapk

Thank You