2.1 Input devices and their uses

- Identify input devices and their uses, e.g. keyboard, numeric keypad, pointing devices (such as mouse, touchpad, tracker ball), remote control, joystick/driving wheel, touch screen, scanners, digital cameras, microphone, sensors (general), temperature sensor, pressure sensor, light sensor, graphics tablet, video camera, web cam

2.1 Input devices and their uses

Input Devices in their Use

Input Devices allow data to be input into a computer.

Input Devices → **Central Processing Unit (CPU)** → **Output Devices**

Central Processing Unit (CPU) → **Storage**

2.1 Input devices and their uses

Input Devices

Device	Use	Advantages	Disadvantages
Keyboard 	• Inputting data into applications • Typing commands into a CLI Interface	• Easy and familiar to use • Fast entry of Text into a document	Slower method compared to direct data entry.
Numeric Key Pad 	Inputting numeric data into: • ATM • POS Terminals • Chip and Pin • Mobile Phones etc.	Straight forward to enter numeric data like pins or prices at a POS.	• Keys can be too small. • Difficult to type letters (older Mobiles to text)

2.1 Input devices and their uses

Input Devices

Device	Use	Advantages	Disadvantages
Mouse 	To control the pointer on the screen to: • Selecting Windows • Clicking Icons • Menu Options • Positioning Pointer	• Easy to navigate through menu options • Quicker to select an option compared to using a keyboard.	• Easily Damaged • Flat surface required.
Touch Pad 	• Used as a pointing device on a laptop.	• Is part of the keyboard so no need for separate device.	• More difficult to use compared to a normal mouse.
Tracker Ball 	• Used by users who tend to have limited motility in their wrist (RSI)	• Easier to use compared to mouse • More accurate positing of the pointer.	• Tend to be more expensive. • Not familiar to users.

2.1 Input devices and their uses

Input Devices

Device	Use	Advantages	Disadvantages
Remote Control 	Used to control: • TV Channels and Menu options • Multimedia Systems • Industrial applications	• Can be used from a distance.	• Signal could be blocked by obstacles or walls.
Joystick 	• Used in computer games and simulators.	• Easier to used compared to a keyboard.	• More difficult to use compared to a normal mouse.
Driving Wheel 	• Used by gamers in computer games (Racing/Driving). • Used in simulators.	• Driving experience is more accurate than using keyboards.	• More expensive. • Movement could be too sensitive

2.1 Input devices and their uses

Input Devices

Device	Use	Advantages	Disadvantages
Touch Screen 	Used on: • Mobile/Tablets • Point of Sale (POS) • Interactive White Boards	• Very easy to use and select options.	• Options could be selected accidently. • Screen can get dirty.
Scanners 	• Used to scan in documents or photographs.	• Copies can be created.	• Quality is dependant on resolution settings.
Digital Cameras 	• Used to take photographs and small video clips. • Data can be transferred to computers.	• Higher Resolution images can be stored on memory cards. • No need to develop film.	• Transferring, storing and editing images can be complicated

2.1 Input devices and their uses

Input Devices

Device	Use	Advantages	Disadvantages
Video Cameras 	• Used to record video footage.	• Can record in HD • Footage can be edited on a computer.	• HD movie take up a lot of storage. • Cost of camera
Microphone 	• Used to input sound into a computer. • Used in voice recognition applications.	• Voice overs can be added to presentations. • Recorded audio can be typed directly into Word Processor applications.	• Voice recognition is not as accurate as typing text into a computer.
Graphics Tablet 	• Used with a stylus to draw free hand drawings which can be stored on a computer.	• Very accurate method of drawing compared to a pointer device.	• Longer to produce drawings • Cost of tablet

2.1 Input devices and their uses

Input Devices

Device	Use	Advantages	Disadvantages
Web Cams 	• Used by users who want to have a web conference (Skype Call)	• Allows for face to face video chat. • Can contact people without the need to travel.	• Quality is dependant on internet connection
Light Pens 	• Used in CAD applications for drawing onscreen	• More accurate than touch screens • Small in size	• Only used with CRT Monitors • Dated Technology

2.1 Input devices and their uses

Discuss why different user interfaces require the use of different types of input devices.

Exam Question

With a GUI (graphical user interface) a mouse enables users to easily manoeuvre a pointer around a screen to select Icons representing applications, menu options and windows. The mouse can also be used to drag windows and icons across the screen. People with disabilities may prefer to use a trackerball as a pointing device as they may have limited motility in their wrists. In addition a joystick or gamepad could be used to mimic the behavior of a mouse when playing games. On the other hand a keyboard will be required to enter command prompts into a CLI (Command Line Interface). Touch screens can be used to directly select options on a screen normally found on portable devices such as smart phones, tablets or even at a POS (Point of Sale).

2.1 Input devices and their uses

Compare and contrast the use of Mouse, Touchpad and Tracker ball as a pointing device?

Key Words: familiar, flat surface, damage, difficult/easier use, fixed device, limited motility, expensive

Exam Question

The mouse is normally used with a desktop computer and is the most familiar pointing device used. However the mouse requires a flat surface to be used and is more likely to be damaged. The touch pad is a fixed device commonly found on laptops. It is more difficult to use compared to a mouse. The tracker ball pointing device is used by users who have limited motility in their wrist. User would move the ball at the top of the device using their fingers to control the pointer on the screen. The tracker ball however tends to be more expensive than the other pointing devices.

2.1 Input devices and their uses

Input Devices : Sensors

A sensor is a device that converts a real world property into data that a computer can process.

Sensor	Example Use
Temperature	Used in green houses to measure temperature
Light	Umpires check light conditions in cricket match
Moisture	To check the moisture in the soil in a green house
Water-Level	Used in washing machine to measure water level
Proximity	Used when parking cars to judge distance.
Movement	Detects movement which could trigger an alarm
Pressure	Used in burglar alarms

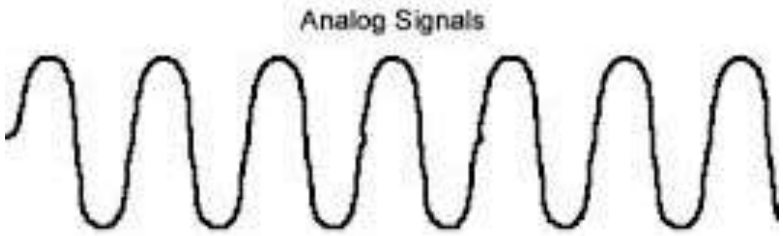
2.1 Input devices and their uses

Input Devices : Sensors

Real world measurements are collected as an **analogue** signal from the sensor.

A computer only understands **digital** signals.

An **ADC** (**Analogue-to-digital converter**) is needed to **convert the signal** so a computer understands the signal.



Data collected from Sensor is in Analogue

ADC - Analogue-to-digital converter

Analogue Signal now can be understood by computers.