

# ICT IGCSE Theory – Revision Presentation

## 2.3 Output devices and their uses

- Identify output devices and their uses, e.g. CRT monitor, TFT/LCD monitor, IPS/LCD monitor, LED monitor, touch screen (as an output device), multimedia projector, laser printer, inkjet printer, dot matrix printer, wide format printer, 3D printer, speakers, motors, buzzers, heaters, lights/lamps
- Describe the advantages and disadvantages of any of the above devices

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### Cathode Ray Tube (CRT) Monitor

**Use:** As primary output display for computers.

**Advantage:** Cheaper than other monitors and can be used with light pens.  
Resolution is also very good.

**Disadvantage:** Size is bigger – requires more desk space.  
Could be a safety hazard if not correctly supported.



### Liquid Crystal Display (LCD) Monitor

**Use:** Have taken over from CRT as primary output display for computers. Also primary output for monitors.

**Advantage:** Smaller and lighter so less desk space required.  
Consumes less power and does not generate as much heat as CRT monitors.

**Disadvantage:** Resolution may not be as good as a CRT monitor.



Flat Screen

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### In-Plane Switching **IPS**/LCD Monitor

**Use:** IPS is generally used by creative professionals (professional graphic artists).

**Advantage:** Has wide viewing angles by altering the direction of the pixels within the display. Colour reproduction is better than other monitors.

**Disadvantage:** More expensive compared to other monitors.



Flat Screen

### Light-Emitting Diode **LED** Monitor

**Use:** LED monitors are generally used outdoors in store signs, destination signs and billboards due to their level of brightness.

**Advantage:** LEDS produces better light which improves the colour definition and can be used outdoors in different types of light. LED are also energy efficient and can last along time.

**Disadvantage:** More expensive compared to other monitors.



Flat Screen

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### Touch Screen



USE:	Advantages	Disadvantages
<p>A <b>touch screen</b> is a computer display screen that is also an input device. Users can interact with the screen by using their fingers or a special stylus/pen.</p> <ul style="list-style-type: none"> <li>• Mobile Phones/Tablets</li> <li>• Terminals at POS/Banks/Stations</li> </ul>	<ul style="list-style-type: none"> <li>• No need for additional input devices.</li> <li>• No need for additional buttons.</li> <li>• Menus and interface generally very easy to use.</li> <li>• Zoom in and rotation is possible.</li> </ul>	<ul style="list-style-type: none"> <li>• Screen could become damaged, dirty, less visible etc.</li> <li>• Difficult to input high volumes of information compared to using a keyboard.</li> </ul>

### Projector



USE:	Advantages	Disadvantages
<p><b>Multimedia projectors</b> are used when projecting signals from various (Computer, TV) devices onto a large screen.</p> <ul style="list-style-type: none"> <li>• Classrooms</li> <li>• Offices</li> <li>• Training Presentations</li> <li>• Home cinema systems</li> </ul>	<ul style="list-style-type: none"> <li>• Is able to project onto a big screen allowing more people to see the output.</li> <li>• Users can gather around one screen – main focal point in classrooms.</li> </ul>	<ul style="list-style-type: none"> <li>• Output resolution may not be the same quality as other devices.</li> <li>• Obstacles could affect block the projection.</li> <li>• Expensive to buy and difficult to set up.</li> </ul>

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### Inkjet Printer



#### USE:

**Inkjet printers** are used when **low output volumes** are required.

- Home use to print homework or single pages/images.

#### Advantages

- Cheap high quality printing.
- Cheaper to buy compared to laser printers.
- Small in size – takes up less desk space.

#### Disadvantages

- Ink cartridge can run out quickly and be expensive to replace.
- Slow printing compared to laser printer.

### Laser Printer



#### USE:

**Laser printers** are used when **High output volumes** are required.

- Schools
- Offices

#### Advantages

- High quality printing
- Printing is fast especially when printing in high volumes.
- Toner lasts longer than inkjet cartridge – cost effective.
- Prints quietly.

#### Disadvantages

- Laser printer is more expensive to buy.
- Colour laser printers are more expensive to run compared to black and white laser printers.

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### Dot Matrix Printer



USE:	Advantages	Disadvantages
<p><b>Dot Matrix</b> is a type of printing which uses a print head which presses against an inked ribbon whilst moving back and forth.</p> <ul style="list-style-type: none"> <li>• Shop receipts</li> <li>• Airline tickets</li> <li>• When duplicates (carbon copies) are required.</li> </ul>	<ul style="list-style-type: none"> <li>• Not affected by hot/dusty environments.</li> <li>• Can print carbon copies (useful when additional copies need to be signed).</li> <li>• Cheap to run and maintain.</li> </ul>	<ul style="list-style-type: none"> <li>• Very slow printing</li> <li>• Poor Quality printing</li> <li>• Noisy compared to other printers.</li> </ul>

### Wide Format Printer



USE:	Advantages	Disadvantages
<p><b>Wide Format printers</b> are generally used when large format printing is required.</p> <ul style="list-style-type: none"> <li>• Banners</li> <li>• Billboards</li> <li>• Signs</li> <li>• Posters</li> <li>• Photographs and Art</li> </ul>	<ul style="list-style-type: none"> <li>• High resolution printing compared to laser and inkjet printers.</li> <li>• Large printouts</li> <li>• Companies are able to print in house which is cheaper than asking another company to print.</li> </ul>	<ul style="list-style-type: none"> <li>• Generally expensive to buy and maintain.</li> </ul>

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Discuss the advantages and disadvantages of using a Laser, Inkjet, wide format and dot matrix printer.



### Exam Question

Laser printers can provide **fast** and **high quality printing**. Typically laser printers are used to print in **high volumes**. However the printer will be **more expensive** to buy compared to an Inkjet printer and also the **toner will cost more**. The inkjet also provides **high quality printing** however it prints much **slower** than the laser printer and therefore is normally used when printing in **low volumes**.

Wide format printers are used to print **very large printouts** in **high quality**. The Wide Format printer will be typically the most **expensive printer to purchase and maintain**. The advantage for the dot matrix printer is that it can work **in hot and dusty conditions** and **can print carbon copies**. However the printing **quality is quite poor** compared to the other printers. In addition the printing time is also much **slower compared** to the laser and inkjet computer.

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### 3D Printer



#### USE:

**3D Printers** can produce solid objects by building layer upon layer.

- Prosthetic limbs
- Manufacturing Parts
- Medical Applications
- Construction
- Fashion/Arts

#### Advantages

- Products can be customised .
- Prototypes can be created quickly.
- Parts can be created which are no longer manufactured.
- Artificial organs can be created.

#### Disadvantages

- Counterfeits products could be created.
- Dangerous objects could be printed if used inappropriately.
- Very expensive printer.

### Speakers



#### USE:

**Speakers** are required to output sound. Essential for video conferencing, movies, computer games etc.

#### Advantages

- Speakers can be used wirelessly using Bluetooth technology.
- Sounds can be amplified.
- Surround sounds systems to give a more realistic experience.

#### Disadvantages

- Not as personal compared to headphones – can be heard by everyone.
- An underpowered amplifier playing at high volumes can damage a speaker.



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3D printers are being used for producing personalised prescription drugs.

(a) Give two advantages of using 3D printers for this purpose.



### Exam Question

The tablets can be customised to meet the individual needs. Using the 3D printer would make it easier to change the percentages of drug in the tablet. The tablets can be produced in mass produced or small batches therefore reducing waste. Patients would receive their prescriptions quicker.

(b) Give two disadvantages of using 3D printers for this purpose.

The cost of buying the 3D printer is expensive. The materials for printing are also expensive. On the other hand 3D printers can be used for illegal production of drugs. In addition not all 3D printers created to date can not complete this task.

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**Actuators** are part of the **control process** – digital signals are sent by the computer to actuator to affect or control the real world.



### Type

### Use

#### Motors

(Spins things around)

- Washing machines
- Control Fans
- Control Robot Arms in manufacturing



#### Buzzer

(Creates a noise)

- Used in burglar alarms
- Microwave ovens and other household appliances
- Sporting events/Game shows



#### Heater

(Increases temperature)

- Control heat in a central heating system
- Control heat in a green house
- Control heat in an oven



#### Lights

(Creates light)

- Security lights
- Car Dashboard – e.g. to alert driver of low fuel.
- Lights in greenhouse