



Types of Computer & Emerging Technologies

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Desktop Computer

What is a desktop computer?

- A desktop computer is a computer **designed to stay in one place**, for example on a desk
- A desktop computer traditionally consists of a separate:
 - **Monitor**
 - **Computer**
 - **Keyboard & mouse**
- Desktop computers are typically **more powerful** than mobile computers
- Desktop computers are **upgradable**, the parts can be replaced/changed to increase performance

Uses of desktop computers

Office & Business	Education	Gaming & entertainment
Word processing	Online learning	Online gaming
Financial modelling	Research (www)	Streaming music/film/TV
Email	Content creation	Social media
Data storage & backup	Multimedia presentations	Online browsing
Video/image editing	Online collaboration	
Project management	Online communication	
Video conferencing		

Mobile Computer

What is a mobile computer?

- A mobile computer is a computer **designed to be** portable, for example a laptop
- A mobile computer traditionally consists of built-in:
 - **Monitor**
 - **Computer**



Your notes

- **Keyboard & trackpad** or **touch screen keyboard & pointer**
- Mobile computers are typically **less powerful** than desktop computers due to:
 - **Power constraints due to size**
 - **Focus on extending battery life**
- Mobile computers are **not easily upgradable**, components are integrated for size and efficiency
- Mobile computers are **battery powered**

Characteristics of mobile computers

Laptop	Smartphone	Tablet/Phablet
Lightweight	Small physical size	Larger screen than smartphones
Low power consumption	Easy to carry around	Ideal for media consumption and web browsing
Take up less room (than desktop)	Long battery life	Limited expandability
Touchscreen interface	Slower data transfer rates	Uses Bluetooth, Wi-Fi, 4G, 5G

Uses of mobile computers

Office & Business	<ul style="list-style-type: none">▪ Remote access to office applications▪ Email and communication on the go▪ Mobile payment processing▪ Calendar
Education	<ul style="list-style-type: none">▪ E-books and digital textbooks▪ Educational apps and tools▪ Note-taking and research
Gaming & entertainment	<ul style="list-style-type: none">▪ Mobile gaming apps▪ Streaming movies and music▪ Social media
Remotely controlled devices	<ul style="list-style-type: none">▪ Controlling smart home devices▪ Remote access to surveillance systems

	<ul style="list-style-type: none"> Controlling drones and other devices
Other	<ul style="list-style-type: none"> Sat Nav Online banking Searching the Internet Taking photos Language translation



Your notes

Advantages and disadvantages

Advantages	Disadvantages
Easy to carry and use on the go (Portability)	Limited expandability (Difficult to upgrade hardware)
Access to internet and resources from anywhere (Flexibility)	Less powerful (Lower performance compared to desktop computers)
Can be used for various tasks and activities (Multi-functionality)	Shorter battery life (Needs frequent charging)



Worked Example

Circle two input devices that could be used in a smartphone.

HDD	magnetic stripe reader	microphone	mouse
remote control	speaker	touchpad	touch screen

[2]

Answer

Microphone [1]

Touch screen [1]



Artificial Intelligence (AI)

What is artificial intelligence?

- Artificial intelligence (**AI**) is a machine that can **simulate intelligent behaviours** similar to that of a **human**
- AI is a system that can:
 - Learn** - acquire new information
 - Decide** - analyse and make choices
 - Act autonomously** - take actions without human input
- There are two main types of AI:
 - Weak AI**, also known as **narrow AI**, is designed to perform a specific task or set of tasks
 - Strong AI**, also known as artificial general intelligence (**AGI**), is designed to perform any intellectual task that a human can do

Advantages and disadvantages of AI

Advantages	Disadvantages
Increased efficiency	Job losses
Increased accuracy	Potential for biased decision making
Scalability	Ethical concerns over its use

Extended Reality (XR)

What is extended reality?

- Extended reality is an emerging technology that involves **blending the virtual and real worlds together** to create immersion for a user
- Popular examples of extended reality are:
 - Virtual (VR)**
 - Augmented (AR)**

Virtual reality

- Virtual reality is a technology that tries to shut out the 'real world' and immerse them in fully simulated environment



Your notes

- Virtual reality blocks out the 'real-world' by having users wear headsets with built in screens that provide a 360 degree view
- Users are often able to interact with the virtual world through motion tracking

Augmented reality

- Augmented reality overlays digital information or graphics into the 'real-world'
- Users are not fully immersed and can still interact and see what is in front of them
- Users view augmented reality via a smartphone or headset

Impacts of XR

XR

- Used in gaming, education, and training for a more engaging experience
- Can be applied in fields like architecture, medicine, and retail for improved visualisation and interaction
- Potential issues with addiction and excessive screen time



Worked Example

Some smartphones connected to the internet can allow the user to point their phone's camera at an object or image to display information about it on the phone's screen. The object acts like an item in a search engine. This is called augmented reality.

One example of its use is in mobile games, where the user tries to catch characters from the game as the characters appear to walk in the streets. Explain, using examples, other ways in which augmented reality could be used in everyday life.

[4]

Answer

Max three of:

Gather information [1]

Can be used as a direction finder [1]

Visualise what something will look like in real life [1]

Could be used for facial recognition [1]

Max three of:

Examples of gathering information about a building/painting / product [1]

Giving information about the area you are moving in / finding your way in an airport/railway station / shopping mall etc. [1]

Used by archaeologists / architects / interior designers / try on clothes / trying makeup/colour of clothing / placing furniture [1]

point it at a word to link to the thesaurus / get it's meaning / translation / modern
landscape [1]
Used by the police to recognise suspects [1]



Your notes