Module 2 THE BODY OF COMPUTERS

UNIT 4 • THE ELECTRONICS OF COMPUTERS

1 Complete the text with these words.

cables • coating • index • material • signal • three

Fibre optics

A single OF is made of (1) parts. The core is the central part of the fibre
where the (2) travels. It has a higher reflective index than the cladding,
which is a layer of optical (3) surrounding the core with a lower reflective
(4) The cladding does not absorb any light from the core but reflects it back
into the core itself. The buffer coating is a plastic (5) that protects the fibre
from any damage. Optical fibres are arranged in (6) hich are protected by an outer covering called jacket.

2 Match these terms with their definitions.

- **1.** die
- 2. doping
- 3. integrated circuit
- **4.** hybrid circuit
- **5.** monolithic circuit
- 6. package
- 7. printed circuit board
- 8. silicon
- **9.** pipe
- 10. wafer

- **a.** A chemical treatment to determine electrical properties.
- **b.** A circuit in which the components are joined to a printed circuit board.
- c. A circuit made from a single crystal of silicon.
- **d.** A circular slice of silicon.
- e. Something that has the shape of a tube.
- **f.** A raw chemical element.
- **g.** A street-like map with electronic components linked by copper connections.
- **h.** A tiny circuit with many interconnected microelectronic devices.
- i. The external structure of the die.
- j. The surface on which the circuit is made.

3 🕔 Complete the text with words or expressions or your choice.

Satellites

A satellite rotates around the Ea	arth in a	or	path.
Before the use of satellites	of signal	ls was rather difficu	ult.
Signals travel	and can't	around the	Earth.
Nowadays there are	of active satell	ites orbiting aroun	d the Earth.

Read the following text and complete it with the missing words.

airwave • bandwidth • collective • light • limited • projector • spectrum • used

Infrared light transmission

Δ

Adapted from: http://ecomputernotes.com/computernetworkingnotes/ communication-networks/infrared-transmission

ACTIVITIE

UNIT 5 • THE STRUCTURE OF COMPUTERS

Complete the table on the characteristics of computer memories. Then, practise making comparisons.

	Primary memory	Secondary memory	Tertiary memory
speed			
size			
capacity			
cost			

2 Read this text and explain in your own words the difference between a hard disk drive (HDD) and a solid state drive (SSD).

HDD and SSD Explained

The traditional spinning hard drive is the basic non volatile storage on a computer. That is, information on it doesn't "go away" when you turn off the system, as is the case with data stored in RAM. A hard drive is essentially a metal platter with a magnetic coating that stores your data, whether weather reports from the last century, a high-definition copy of the original *Star Wars* trilogy, or your digital music collection. A read/write head on an arm accesses the data while the platters are spinning.

An SSD does functionally everything a hard drive does, but data are stored on interconnected flash memory chips that retain the data even when there's no power present. The chips can either be permanently installed on the system's motherboard (as on some small laptops and ultra-portables), on a PCI Express (PCIe) card (in some high-end workstations and an increasing number of bleeding-edge consumer systems), or in a box that's sized, shaped, and wired to slot in for a laptop or desktop's hard drive (common on everything else). These flash memory chips are of a different type than the ones used in USB thumb drives, and are typically faster and more reliable. SSDs are consequently more expensive than USB thumb drives of the same capacities.

Adapted from: https://www.pcmag.com/article2/0,2817,2404258,00.asp

ACTIVITIES

Read the text and complete it with the missing words or phrases.

address space • Least Recently Used • memory manager • other pages • page file • swapping

Virtual RAM

3

Because computers have a finite amount of RAM, it is possible to run out of memory when too many programs are running at one time. This is where virtual memory comes in. Virtual memory increases the available memory your computer has by enlarging the (1), or places in memory where data can be stored. It does this by temporarily transferring pages of data from random access memory (RAM) to disk storage for additional memory allocation. However, since the hard drive is much slower than the RAM, data stored in virtual memory must be mapped back to real memory in order to be used. Eventually, the O/S will need to retrieve the temporary data transferred to the hard disk. To solve the problem, the operating system will need to move (2) to the hard disk so that it has room to bring back the pages it needs right away from temporary disk storage. This process is known as paging or (3), and the temporary storage space on the hard disk is called a (4) or a swap file. Swapping, which happens so quickly that the end user does not know it is happening, is carried out by the computer's memory manager unit (MMU). The (5) unit may use one of several algorithms to choose which page should be swapped out, including (6) (LRU), Least Frequently Used (LFU) or Most Recently Used (MRU).

adapted from: http://searchstorage.techtarget.com/definition/virtual-memory (2016)

4 Answer the questions.

- 1. What are the two main uses of secondary storage?
- 2. What does magnetic storage use?
- 3. What does the head do?
- 4. What is the magnetic surface like?
- 5. What are the main characteristics of magnetic storage?
- 6. What is a hard disk like?
- 7. What do magnetic tapes resemble? What are they still used for?
- 8. What are floppy disks like?

UNIT 6 • THE PERIPHERALS OF COMPUTERS

1 Read the text and match these headings with the right paragraph.

- a. earbuds
- b. in-ear monitors (IEMs)
- c. on ear
- d. over-ear

Headphone types

- 1. They are headphones that fit snugly inside each ear canal. The majority of sports headphones fall into this category. Most models come with foam or rubber tips in several sizes for a secure fit so they stay put while exercising or moving about, and replacement tips in custom sizes can be purchased separately. Some professional-grade models can be precisely moulded to fit your ear canals. In-ear monitors are excellent for passive noise isolation, and higher-end models deliver sound quality that rivals larger headphones.
- 2. They feature small drivers that rest on the ridge of your outer ear. They usually deliver lesser fidelity and isolation than other types of headphones, but at a highly affordable price. These are the headphones that come with many portable music devices.
- 3. Also known as "around-ear" or "full-size" headphones, they have cushioned earcups that enclose the ears. Usually considered the best headphones for sound quality, most over-ear models also do a good job of isolating the user from outside sound. This feature is sometimes called "passive noise reduction".
- 4. These headphones are similar in design to over-ear models, though the cushions sit on the outer ear rather than enclosing the ears. Generally, on-ear models deliver good sound quality, but with less bass response than over-ear models. When you are wearing these headphones, you can still hear outside sounds, and others nearby might be able to hear your music.

https://www.bestbuy.com/site/buying-guides/headphone-buying-guide

2 V Listen to an extract on how to make a projector brighter and take notes for the various steps.

Step 1	
Step 2	
Step 3	
Step 4	