UNIT 14

New technologies

B Match the texts (1–5) with the pictures (a–e). Which trends from your list in A are mentioned?

a ....

b ....

NETWORK

c ....

d ....

e ....

Future trends

1

By all accounts, **nanotechnology** - the science of making devices from single atoms and molecules - is going to have a huge impact on both business and our daily lives. Nano devices are measured in **nanometres** (one billionth of a metre) and are expected to be used in the following areas.

• **Nanocomputers**: Chip makers will make tiny microprocessors with **nanotransistors**, ranging from 60 to 5 nanometres in size.

• **Nanomedicine**: By 2020, scientists believe that nano-sized robots, or **nanobots**, will be injected into the body's bloodstream to treat diseases at the cellular level.

• **Nanomaterials**: New materials will be made from carbon atoms in the form of **nanotubes**, which are more flexible, resistant and durable than steel or aluminium. They will be incorporated into all kinds of products, for example stain-resistant coatings for clothes and scratch-resistant paints for cars.

2

Artificial Intelligence (AI) is the science of making intelligent machines and programs. The term originated in the 1940s, when Alan Turing said: "A machine has artificial intelligence when there is no discernible difference between the conversation generated by the machine and that of an intelligent person." A typical AI application is **robotics**. One example is ASIMO, Honda's intelligent humanoid robot. Soon, engineers will have built different types of **android**, with the form and capabilities of humans. Another AI application is **expert systems** - programs containing everything that an 'expert' knows about a subject. In a few years, doctors will be using expert systems to diagnose illnesses.

Alan Turing

Nhà toán học

Alan Mathison Turing là một nhà toán học, logic học và mật mã học người Anh thường được xem là cha đẻ của ngành khoa học máy tính. Wikipedia

Ảnh khác

ASIMO

Asimo là một người máy có thể di chuyển bằng hai chân như người do Trung tâm Nghiên cứu Kỹ thuật Cơ bản Waco của tập đoàn Honda chế tạo năm 2000. Người máy này cao 130 cm, nặng 54 kg, có khả năng di chuyển nhanh đến 6 km/giờ. Wikipedia
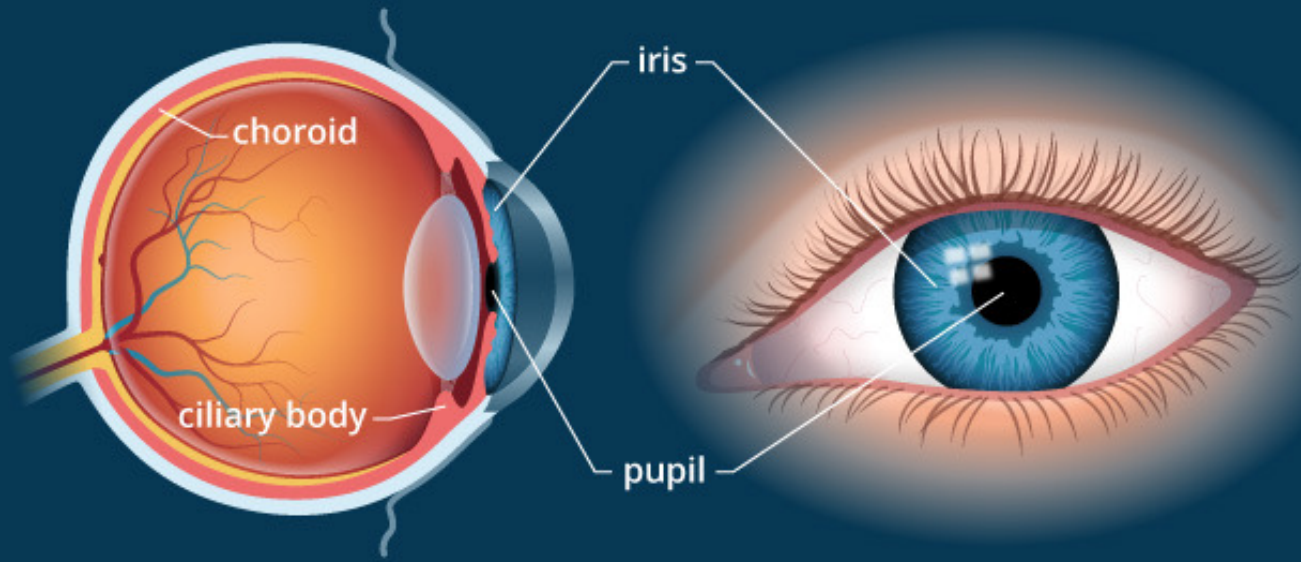
Future trends

3

Imagine you are about to take a holiday in Europe. You walk out to the garage and talk to your car. Recognizing your voice, the car's doors unlock. On the way to the airport, you stop at an ATM. A camera mounted on the bank machine looks you in the eye, recognizes the pattern of your iris and allows you to withdraw cash from your account.

When you enter the airport, a hidden camera compares the digitized image of your face to that of suspected criminals. At the immigration checkpoint, you swipe a card and place your hand on a small metal surface. The geometry of your hand matches the code on the card, and the gate opens. You're on your way.

Does it sound futuristic? Well, the future is here. **Biometrics** uses computer technology to identify people based on physical characteristics such as fingerprints, facial features, voice, iris and retina patterns.
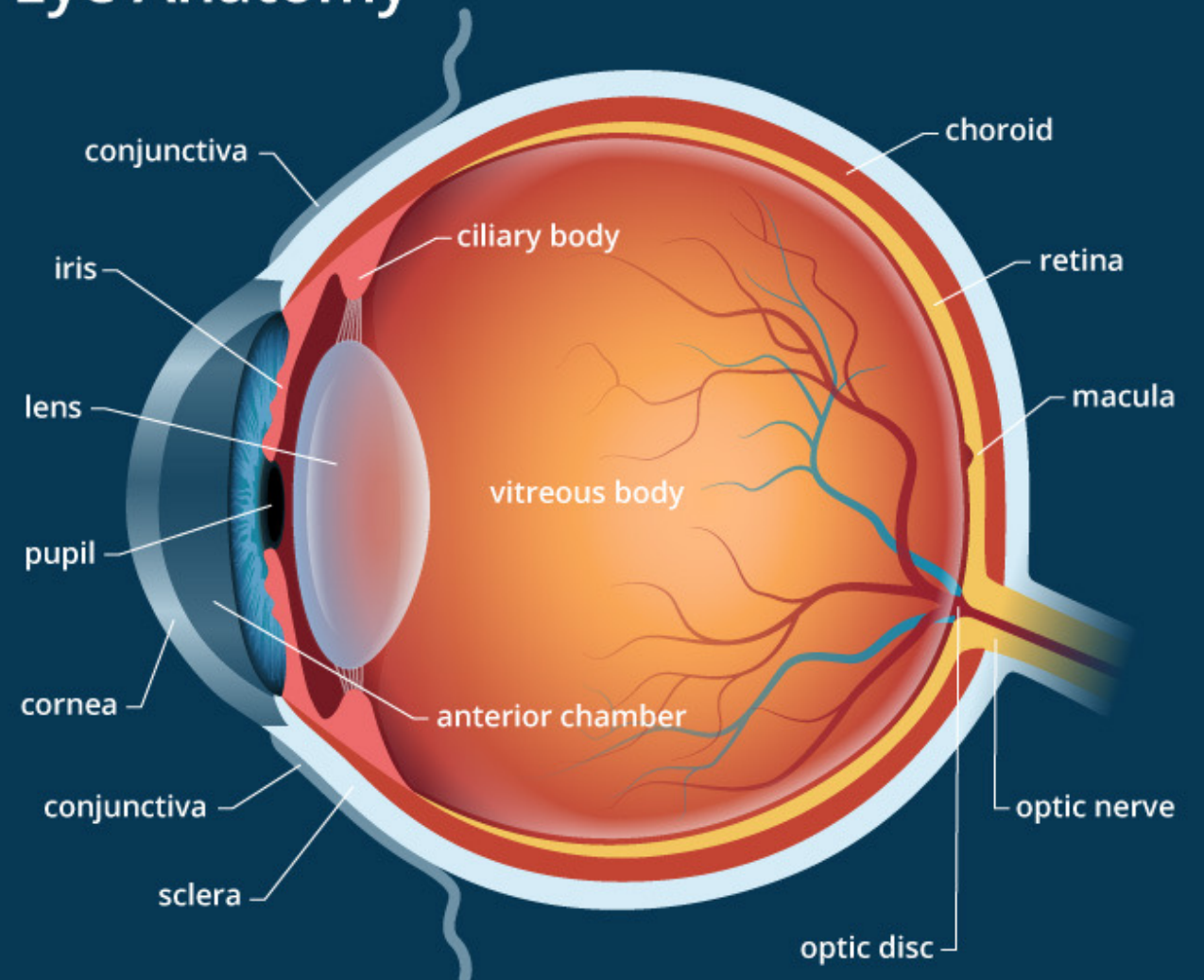
4

Ubiquitous computing, also known as **pervasive computing**, is a new approach in which computer functions are integrated into everyday life, often in an invisible way. **Ubiquitous devices** can be anything from smartphones to tiny sensors in homes, offices and cars, connected to networks, which allow information to be accessed anytime and anywhere - in other words, ubiquitously. In the future people will interact naturally with hundreds of these **smart devices** (objects containing a microchip and memory) every day, each invisibly **embedded** in our environment and communicating with each other without cables.

Uvea: Iris, Ciliary Body and Choroid

choroid

iris

ciliary body

pupil

Eye Anatomy

conjunctiva

iris

lens

pupil

cornea

conjunctiva

sclera

ciliary body

choroid

retina

macula

vitreous body

anterior chamber

optic nerve

optic disc

Ubiquitous: present, appearing, or found everywhere.

Pervasive: spreading widely throughout an area or a group of people.

Future trends

In the ideal **smart home, appliances** and electronic devices work in sync to keep the house secure. For example, when a regular alarm system senses that someone is breaking into the house, it usually alerts the alarm company and then the police. A smart home system would go further, turning on the lights in the home and then sending a text message to the owner's phone. Motorola Home sight even sends images captured by wireless cameras to phones and PCs.

Smart homes can remember your living patterns, so if you like to listen to some classical music when you come home from work, your house can do that for you automatically. They will also know when the house is empty and make sure all appliances are turned off. All home devices will be interconnected over a home area network where phones, cable services, home cinemas, touch screens, smart mirrors and even the refrigerator will cooperate to make our lives more comfortable.

APPLIANCES

ELECTRONIC DEVICES

C Read the texts again and answer these questions.

1. Which unit of measurement is used in nanotechnology?

2. What are the advantages of nanotubes over regular materials?

3. What will doctors use expert systems for?

4. What features are analysed by biometrics?

5. Which trend refers to computers embedded in everyday devices, communicating with each other over wireless networks?

6. What will the alarm system do if someone breaks into a smart home?

7. How will devices be interconnected inside the smart home?

▶

D Find words in the texts with the following meanings.

1. a microscopic robot, built with nanotechnology (text 1) __nanobot__

2. a robot that resembles a human (text 2) __android__

3. biological identification of a person (text 3) __biometrics__

4. integrated; inserted into (text 4) __embedded__

5. electrical devices, or machines, used in the home (text 5) __appliances__

A Which definition best describes RFID?

a. a smart technology worn on the user's body so that they can email and access the Web

b. a technology that uses radio waves and chip-equipped tags to automatically identify people or things

c. a technology that uses microchips and bar codes to track people or things at a distance
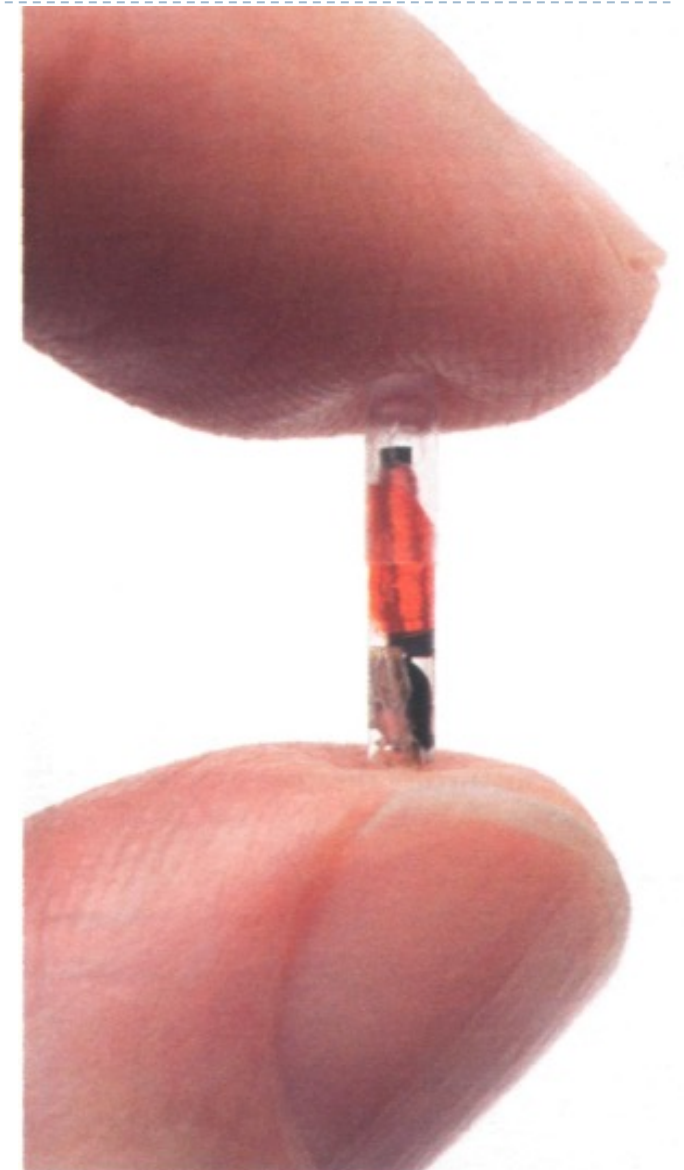
An RFID micro chip

B Decide which answers (a or b) are correct

1. RFID stands for

a. Radio Frequency Identification.   b. Radio Frequency Identification Download.

2. Radio tags

a. can only be attached to or embedded into products.

b. can be attached to or embedded into products, animals and humans.

3. Active RFID tags

a. have a communication range of several hundred metres,

b. have a communication range of five metres.

4. RFID chips

a. will help us track ordinary objects like car keys or books,

b. won't be able to locate objects when they are lost or stolen.

5. Radio tags may be implanted under the skin

a. to confirm a patient's identity and cure illnesses,

b. to give doctors instant access to a patient's medical history.

6. According to consumer organizations, RFID tags

a. could be used to track consumers or to steal a person's identity,

b. are secure and private; there is no need for concern.

Thì tương lai

- tương lai đơn (**will / wILL not + verb**) sử dụng:
  - Để đưa ra dự đoán khi bạn không có bằng chứng hiện tại cho thấy điều gì đó sẽ xảy ra.

    *Nanobots **will be injected** into the body's bloodstream to treat diseases.*
  - Để nói về hy vọng và lời hứa, đặc biệt với từ expect, think, hope và probably

    *They hope that people **will interact** naturally with hundreds of smart devices at a time.*
  - Để mô tả một quyết định tức thì, thường khi đưa ra một đề xuất

    *Sure, I'**ll help** you with your homework.*
  - Nói về sự thật chắc chắn sẽ xảy ra

    *She'**ll be** 21 in May.*
- **be going to + verb** sử dụng:
  - Mô tả các ý định tương lai

    *She'**s going to write** a book about ubiquitous computing.*
  - Để đưa ra dự đoán khi bạn có bằng chứng hiện tại rằng một điều gì đó sẽ xảy ra

    *By all accounts, nanotechnology **is going to have** a huge impact on business and our daily lives.*
- tương lai tiếp diễn (**will be + V-ing**) để nói về những hành động tiến triển tại một thời điểm cụ thể trong tương lai

  *In a few years, doctors **will be using** expert systems to diagnose illnesses.*
- tương lai hoàn thành (will have + past participle) để nói về các hành động hoàn thành tại một thời điểm cụ thể trong tương lai.

  *Soon, engineers **will have built** different types o f android.*

A Choose the correct words in brackets to complete these sentences.

1. In the future, I hope we ('ll have /'re going to have) robots in the home to help us with the housework.

2. Hey, Nick, be careful, you ('re going to spill /'ll spill) that coffee on the computer!

3. It's John's birthday next week. We ('ll give/'re going to give) him a mobile phone.

4. - My laptop has crashed!

   - Don't worry. I ('ll lend /'m going to lend) you mine.

5. The Internet (will probably change / is probably going to change) the publishing industry in the way that TV changed the movie industry.

6. Futurists predict that smart technology (will be / is going to be) incorporated into fabrics, so you'll be able to email from your coat!

▶

B Complete these sentences with the correct future form of the verb in brackets. Use the future continuous or future perfect.

1. Thanks to ICT, by the year 2030 we (find) _will have found_ cures for the major diseases of our time.

2. In twenty years' time, some people (live) _will be living_ in space, perhaps inside a computerized colony.

3. By this time next week, I (work) _will be working_ for IBM.

4. By this time next month, I (buy) _will have bought_ that BlackBerry that I've been wanting to buy for months.

5. Scientists predict that in twenty years' time nearly everyone (live) _will be living_ in smart houses.

In pairs, discuss these predictions. Do you agree or disagree? Give reasons for your answers.

1. Some day, we'll be talking to computers naturally, like friends.

2. Microchips implanted in our arms will serve as ID cards and contain our medical records.

3. Robots will learn to build themselves, without human help.

4. Smart homes will be voice-activated.

5. Computers will be ubiquitous and almost invisible, embedded into our homes and integrated into our lives.