

МІНІСТЕРСТВО ОСВІТИ І НАУКИ УКРАЇНИ

НАЦІОНАЛЬНИЙ ТЕХНІЧНИЙ УНІВЕРСИТЕТ
«ХАРКІВСЬКИЙ ПОЛІТЕХНІЧНИЙ ІНСТИТУТ»

Т. М. Нетецька, Г. О. Неустроева, Л. М. Саліонович, О. М. Томілін

**ЛЕКСИКО-ГРАМАТИЧНИЙ ПРАКТИКУМ З АНГЛІЙСЬКОЇ МОВИ
ДЛЯ СТУДЕНТІВ 3 – 4 КУРСІВ КОМП'ЮТЕРНИХ
СПЕЦІАЛЬНОСТЕЙ ЗАОЧНОЇ ФОРМИ НАВЧАННЯ**

Навчальний посібник

**COMPUTER VOCABULARY AND GRAMMAR IN USE:
EXTRAMURAL STUDENTS PRACTICE BOOK**

Рекомендовано
редакційно-видавничою
радою університету,
протокол № _2 від 24.06.2021 р.

Харків
НТУ «ХПІ»
2021

УДК 811.11 : 004.38 (075.4)

Л 43

Рецензенти:

С. М. Ревуцька, канд. пед. наук, проф. кафедри філології, перекладу та стратегічних комунікацій Національної академії Національної гвардії України

Н.В. Пономаренко, канд. філол. наук, доцент кафедри іноземних мов Українського державного університету залізничного транспорту

Авторський колектив: Т. М. Нетецька, Г. О. Неустроєва, Л. М. Саліонович, О. М. Томілін

Л 43 Лексико-граматичний практикум для студентів 3 – 4 курсів комп'ютерних спеціальностей заочної форми навчання : навч. посіб. / Т. М. Нетецька, Г. О. Неустроєва, Л. М. Саліонович, О. М. Томілін. – Харків : НТУ «ХПІ», 2021. – 160 с.

ISBN

Навчальний посібник містить завдання з усіх видів мовленнєвої діяльності, що спрямовані на формування професійних компетенцій в області професійного спілкування та вдосконалення комунікативних навичок, необхідних у професійному спілкуванні.

Призначено для студентів комп'ютерних спеціальностей

Бібліогр. 10

УДК 811.11 : 004.38 (075.4)

ISBN

© Т. М. Нетецька, Г. О. Неустроєва,
Л. М. Саліонович, О. М. Томілін, 2021 р.

ВСТУП

Сьогодні однією з важливих тенденцій сучасної вищої освіти є зростання ефективності навчального процесу. Відповідно постає проблема відбору й використання таких освітніх методів і технологій, які сприяють підвищенню якості, продуктивності й результативності процесів навчання при швидких темпах розвитку сучасного інформаційно-освітнього середовища, всіх галузей знань і наукових технологій.

При розробленні навчального посібника для вдосконалення лексичних та граматичних навичок для аудиторної й особливо самостійної роботи студентів, окрім відповідності положенням навчальної програми, було враховано такі принципи, як актуальність, пізнавальність, доцільність, інформативність, новизна навчального матеріалу, а також узгодженість з компетенціями, зазначеними в освітніх програмах комп'ютерних спеціальностей. До того ж, увага акцентована на сучасній, цікавій, динамічній формі викладу матеріалу, мережованих видах мовленнєвої діяльності, що також сприяє підвищенню мотивації, підтриманню інтересу й бажання оволодіти професійними комунікативними навичками.

Актуальність створення даного навчального посібника полягає у можливості продовжувати опановувати комунікативні навички на старших курсах, удосконалювати набуті раніше знання, одночасно отримуючи додаткові відомості й цікаву інформацію зі спеціальності.

Посібник включає такі розділи: Вступ, чотири юніти (один на кожен семестр відповідно), тексти для додаткового читання, корисні Інтернет-ресурси для самостійного опанування англійської мови.

UNIT 1

READING

Read the text:

What is a Computer?

Computers are electronic machines which can accept data in a certain form, process the data and give the results of processing in a specified format as information.

Three basic steps are involved in the process: First, data is fed into the computer's memory. Then, when the program is run, the computer performs a set of instructions and processes the data. Finally, we can see the results (the output) on the screen or in printed form.

Information in the form of data and program is known as **software**, and the electronic and mechanical parts that make up a computer system are called **hardware**. A standard computer system consists of three main sections: the Central Processing Unit (CPU), the main memory and the peripherals.

Perhaps the most influential component is the **Central Processing Unit**. It is to execute program functions and to coordinate the activities of all the other units. In a way, it is the 'brain' of the computer. The **main memory** holds the instructions and data which are currently being processed by the CPU. The **peripherals** are the physical units attached to the computer. They include storage devices and input/ output devices.

Storage devices (floppy or hard disks) provide a permanent storage of both data and programs. **Input devices** enable data to go into the computer's memory. The most common input devices are the **mouse** and the **keyboard**. **Output devices** enable us to extract the finished product from the system. For example, the computer shows the output on the **monitor** or prints the results onto paper by means of a **printer**.

On the rear panel of the computer there are several ports into which we can plug a wide range of peripherals – modems, fax machines, optical drives and scanners.

These are the main physical units of a computer system, generally known as the **configuration**.

Summing-up

1. What do we mean when we say “a computer”?
2. What parts make up a computer system?
3. What are the main units of measurement in computer science?
4. What is hardware?
5. What is software?
6. Why is the central processor called “a brain of a computer”?
7. What do we use to input data?
8. What can we plug in a several ports of computer?
9. What is the main function of the CPU?
10. What do we usually call “software”?

Writing

Theme 1:

Describe how you use computers in your studying and your free time.

Theme 2:

Your friend wants to upgrade his computer. Help him to find current configuration for his ideas.

Vocabulary

1. Fill in the gaps:

taskbar, buttons, allows, to hover, choosing, represent, resident, user interfaces, touchscreen, Start button

- 1) A mouse also has left and right
- 2) A bar, known as a ..., is displayed along the bottom of the desktop showing what programs, files and folders are currently open.
- 3) A ... allows the user to select icons and commands by touching the display screen with their finger instead of using a mouse.
- 4) At the far right of the taskbar is a special area called the **system tray** where icons are displayed showing what ... programs are continuously running in the background e.g. the system clock or a sound volume control.

- 5) Graphical ... were first introduced with the Apple Mac OS.
- 6) **My Briefcase** is a program that ... the user to exchange files with a portable computer and to synchronize the files on each computer.
- 7) There is a ... at the far left of the taskbar.
- 8) The user can close down the operating system by ... the **Shut Down** option on the Start Menu.
- 9) Icons are pictures which ... programs, folders, and files.
- 10) ... is to hold the pointer over an icon.

2. Match the words with their definitions:

Arrow Keys, Return/Enter, Backspace, Caps Lock, Shift, Escape, Space Bar, Delete, Alt
--

- 1) A long key at the bottom of the keyboard. Each time it is pressed, it produces a blank space (...).
- 2) It moves the cursor to the beginning of a new line. It is also used to confirm commands (...).
- 3) It stops the program without losing the information from the main memory. Sometimes its usage depends on the application (...).
- 4) It works in the combination with other keys to produce special characters or specific actions (...).
- 5) It removes the character on the right of the cursor or any selected text (...).
- 6) It produces UPPER-CASE characters or the upper-case character of the key (...).
- 7) It produces the upper-case letters but it does not affect numbers and symbols (...).
- 8) It moves the cursor horizontally to the right for a fixed number of spaces (in tabulations and data fields) (...).
- 9) They are used to move the cursor as an alternative to the mouse (...).
- 10) It removes the character on the left of the cursor (...).

3. Guess the definition:

- 1) a device that can read and write to writable disks
- 2) a tool or a piece of equipment made for a particular purpose
- 3) the part of the computer that reads and stores information on disks
- 4) a machine that is connected to a computer and that prints on paper
- 5) the set of buttons (keys) that you press to operate a computer
- 6) a separate part of a PC with a large screen that shows information from the computer
- 7) a small device that you move across a surface with your hand to control the movement of the cursor
- 8) the general term used for a computer, which usually consists of a monitor, a tower, a keyboard and a mouse
- 9) any piece of hardware (= machinery, etc. that forms part of or is connected to a computer) apart from the CPU and the working memory (RAM)
- 10) a metal box that contains the CPU, hard disk drive and power supply for a PC

4. Match the words with their definitions:

- | | |
|--------------------|--|
| 1 mainframe | a) the sort of software that controls a computer system |
| 2 mouse | b) a very small piece of silicon carrying a complex electrical circuit |
| 3 icon | c) a big computer system used for large-scale operations |
| 4 operating system | d) the physical portion of a computer system |
| 5 software | e) a device moved by hand to indicate position on the screen |
| 6 hardware | f) a visual symbol used in a menu instead of natural language |
| 7 microchip | g) data, programs, etc., not forming part of a computer, but used when operating it. |

5. Match the words from A with the statements from B:

- | A | B |
|-------------------------|--|
| 1) abacus | a) instrument used for doing multiplication and division |
| 2) calculus | b) used in the first digital computers |
| 3) analog | c) an instrument used for counting |
| 4) digital computer | d) used in mathematics |
| 5) vacuum tubes | e) circuitry of fourth-generation computers |
| 6) transistors | f) invented by Americans in 1944 |
| 7) chip | g) made computers smaller and faster |
| 8) microminiaturization | h) used to help aim guns |
| 9) slide rule | i) the reduction of circuitry onto a chip |
| 10) logarithm tables | j) a branch of mathematics. |

Speaking

Question 1:

What are the limitations of portable computers?

Question 2:

Do you think students should be allowed to use portable computers in class?

Grammar

1. Put tenses in this dialogue in the correct form: Past simple or Present perfect.

A What (do) today?

B I (work) on my project. I (search) the Web for sites on digital cameras.

A (find) any good ones?

B I (find) several company sites – Sony, Canon, ... but I (want) one which (compare) all the models.

A Which search engine (use)?

B Dogpile mostly. (ever use) it?

A Yes, I (try) it but I (have) more luck with Ask Jeeves. Why don't you try it?

B I (have) enough for one night. I (spend) hours on that project.

A I (not start) on mine yet.

B Yeh? I bet you (do) it all.

2. Complete each sentence using the correct preposition.

1 The CPU is a large chip the compute.

2 Data flows the CPU the address bus.

3 The CPU can be divided three parts.

4 Data flows the CPU and memory.

5 Peripherals are devices the computer but linked it.

6 The signal moves the VDU screen one side the other.

7 The CPU puts the address the address bus.

8 The CPU can fetch data memory the data bus.

3. Describe the operation of the new speed trap by converting each of these statements to the Present Passive.

1 The first unit records the time each vehicle passes.

2 It identifies each vehicle by its number plates using OCR software.

3 It relays the information to the second unit.

4 The second unit also records the time each vehicle passes.

5 The microprocessor calculates the time taken to travel between the units.

6 It relays the registration numbers of speeding vehicles to police headquarters.

7 A computer matches each vehicle with the DVLC database.

8 It prints off a letter to the vehicle owners using mail merge.

4. Complete these sentences with the correct form of verb: infinitive of – ing form.

- 1 Don't switch off without (close down) your PC.
- 2 I want (upgrade) my computer.
- 3 He can't get used to (log on) with a password.
- 4 You can't find information on the internet by (use) a search engine.
- 5 He objected (pay) expensive telephone calls for internet access.
- 6 He tried (hack into) the system without (know) the password.
- 7 You needn't learn how (program) in HTML before (design) webpages.
- 8 I look forward (input) data by voice instead of (use) a keyboard.

5. Describe the effects of these actions using an if-sentence.

- 1 You don't virus-check floppies.
- 2 There was a power cut while you were using your computer.
- 3 You install a faster processor.
- 4 You forgot your password.
- 5 You press the delete key.
- 6 You use a search engine.
- 7 You double-click on an icon.
- 8 You use power-saving options.

Vocabulary

1. Match the concept in column A with the concept in Column B.

A	B
PERIPHERALS	Website
WEB BROWSER	Hard disk drive
COMPUTER HARDWARE	Keyboard
SOFTWARE	Antivirus
SECURITY	Windows

2. Complete the gaps in this summary of the text on operating systems using these linking words and phrases:

although in addition

*because such as
but therefore*

The user is aware of the effects of different applications programs operating systems are invisible to most users. They lie between applications programs word processing, and the hardware. The supervisor program is the most important. It remains in memory, it is referred to as resident. Others are called non-resident they are loaded into memory only when needed.

Operating systems manage the computer's resources, the central processing unit they establish a user interface, and execute and provide services for applications software input and output operations are invoked by applications programs, they are carried out by the operating system.

3. Link each word in column A with a word which it often occurs with from column B. In some cases, more than one link is possible.

Domain	button
File	engine
Graphical	link
Mobile	map
Search	message
Site	name
Text	Page
Web	phone

4. Complete each gap in these sentences with the appropriate form of the correct verb from this list:

back up, keep up, update, build up, set up, upgrade, catch up, start up, upload, free up

- 1 To avoid losing data, you should..... your files regularly.
- 2 You can..... your PC by adding a new motherboard.

- 3 Delete some files to..... space on your hard disk.
- 4 Data is..... from regional PCs to the company's mainframe each night.
- 5 The operating system boots when you..... your Computer.
- 6 She's taking a course to..... her knowledge of computing.
7. The computer checks the memory when it.....
- 8 He ... a website to advertise his travel company.
- 9 You can..... with developments by reading PC magazines.
- 10 if you miss a class, you can study the hand-outs to
- 11 The image in a digital Camera is from a red, green and blue image.

5. Group these terms into the headings.

<i>Viruses</i>	<i>Communication systems</i>	<i>Internet</i>	<i>World Wide Web</i>
----------------	------------------------------	-----------------	-----------------------

anti-virus software, browser, domain, firewalls, URL, passwords, Trojan, router, IRC, site, web page, banner, ICQ, Facebook, hack-module

Grammar

1. Complete these sentences with the correct form of the verb: infinitive or -ing form

1. Don't switch off without (close down) your PC.
2. I want (upgrade) my computer.
3. He can't get used to (log on) with a password.
4. You can find information on the Internet by (use) a search engine.
5. He objected (pay) expensive telephone calls for Internet access.
6. He denies (restart) the system.
7. He promised to (reinstall) the Windows on my PC.
8. He decided to (buy) a new keyboard.
9. John really enjoyed (fix) the computer details.
10. Sarah can't stand (work) on this old computer.

2. Put the tenses in this dialogue in the correct form: Past simple or Present perfect.

- 1 A What (do) today?
2 B I (work) on my project. (search) the Web for sites on digital Cameras,
3 A (find) any good ones?
4 B (find) several Company sites - Sony, Canon, ... but I (want) one which (compare) all the models.
5 A Which search engine (use)?
6 B Dogpile mostly, (ever use) it?
7 A Yes, (try) it but I (have) more luck with Ask Jeeves. Why don't you try it?
8 B (have) enough for one night. (spend) hours on that project.
9 A (not start) on mine yet,
10 B Yeh? bet you (do) it all.

3. Fill in the blanks with the Correct forms of these verbs: need, have to, must, can, could, be able to. In some cases, more than one answer is possible.

1. After the success of Windows 95, Microsoft outsell any competitor.
2. Computer consultants..... specialize in too narrow a field.
3. Programmers to know a range of up-to-date languages.
4. To be a successful Consultant, you be better than the competition.
5. Before IBM set the standard for PCs, software houses write different versions of their programs for every make of Computer.
- 6 .When he was a schoolboy, Bill Gates write programs in BASIC.
- 7.Support engineers must empathize with users.
8. The Altair 8800 was one of the first computers you assemble at home.
9. Most website designers..... use HTML and XML.
10. You..... learn COBOL unless you want to work with business software.

4. Complete each sentence using the correct preposition.

1. The CPU is a large chip ... the computer.
2. Data always flows ... the CPU the address bus.
3. The CPU can be divided ...three parts.
4. Data flows..... the CPU and memory.
5. Peripherals are devices ... the Computer but linkedit.
6. The signal moves the WDU screen..... one side ... the other.
7. The CPU puts the address the address bus.
8. The CPU can fetch data ... memory..... the data bus.
9. The Windows can be reinstalled every user.
10. I can discard the information my flash card.

5. Link these statements with while or until, whichever is most appropriate.

1. Calculate all sales. There are no more sales.
2. Search for records containing the term. There are still records containing the term.
3. Total extra items. Extra items remain.
4. Search member records, There are no more records.
5. Print all addresses. There are still addresses available
6. Display client names. There are no names remaining.
7. List all guests. There are no guests left
8. Total monthly sales. There are no more sales for the current year.
9. Can't use this computer. The Windows will be installed.
10. Use a computer. It is loaded

Speaking

1. Work in pairs, A and B. Choose one of the computing careers from the list provided. Your partner must find out what your job is by asking only Yes/No questions. Your partner cannot ask "Are you a programmer, etc?"

Student A Your career is "Programmer".

Student B Your career is “Web designer”.

2. Work in pairs. The first student says about the advantages of the computer games. The other highlights the shortcomings and why they are harmful to humans

Writing

1. Your friend has decided to learn a computer program called «Photoshop». But you are already familiar with this program. Give him a few tips. How quickly and effectively learn this program. Send email to him and help your friend

2. Computers are developing with each passing day. We cannot imagine life without them.

Write an article in the newspaper on this controversial topic, "Whether computers could replace teachers in the future"

Reading

Read the text:

Computers Make the World Smaller and Smarter

The ability of tiny computing devices to Control complex operations has transformed the way many tasks are performed, ranging from scientific research to producing Consumer products. Tiny 'computers or a chip' are used in medical equipment, home appliances, cars and toys. Workers use handheld computing devices to collect data at a customer site, to generate forms, to control inventory, and to serve as desktop organizers.

Not only is computing equipment getting smaller, it is getting minor sophisticated. Computers are part of many machines and devices that once required continual human supervision and control. Today, computers in security systems result in safer environments, computers in cars improve energy efficiency, and computers in phones provide features such as call forwarding, call monitoring, and call answering.

These smart machines are designed to take over some of the basic tasks previously performed by people; by doing, they make life a little easier and a little more pleasant, Smart cards store vital information such as health records, drivers' licenses, bank balances, and so on. Smartphones, cars, and appliances with built in computers can be programmed to better meet individual needs. A smart house has a built-in monitoring system that can turn lights on and off, open and close windows, operate the Oven, and TON.

With small computing devices available for performing smart tasks like Cooking dinner, programming the VCR, and controlling the flow of information in an organization, people are able to spend more time doing what they often do best - being creative. Computers can help people work more creatively.

Multimedia systems are known for their educational and entertainment value, which we call "edutainment". Multimedia combines text with sound, video, animation, and graphics, which greatly enhances the interaction between user and Machine and can make information more interesting and appealing to people. Expert systems software enables computers to 'think' like experts. Medical diagnosis expert systems, for example, can help doctors pinpoint a patient's illness, suggest further tests, and prescribe appropriate drugs.

Connectivity enables computers and software that might otherwise be incompatible to communicate and to share resources. Now that computers are proliferating in many areas and networks are available for people to access data and Communicate with others, personal computers are becoming interpersonal PCs. They have the potential to significantly improve the way we relate to each other. Many people today telecommute - that is, use their Computers to stay in touch with the office while they are working at home. With the proper tools, hospital staff can get a diagnosis from a medical expert hundreds of thousands of miles away, Similarly, the disabled can communicate more effectively with others using computers.

Distance learning and video Conferencing are concepts made possible with the use of an electronic classroom or board room accessible to people in remote locations. Vast databases of information are currently available to users of the Internet, all of who can send messages to each other. The information superhighway is designed to significantly expand this interactive connectivity so that people all over the world will have free access to all these resources

People power is critical to ensuring that hardware, software, and connectivity are effectively integrated in a socially responsible way. People - computer users and computer professionals - are the ones who will decide which hardware, software, and networks endure and how great an impact they will have on Our lives. Ultimately people power must be exercised to ensure that computers are used not only efficiently but in a socially responsible way.

Mark the following statements as True or False:

- a Desktop organizers are programs that require desktop Computers.
- b Computers are sometimes used to monitor systems that previously needed human supervision.
- c Networking is a way of allowing otherwise incompatible systems to communicate and share resources.
- d The use of Computers prevents people from being creative,
- e Computer users do not have much influence over the way that computing develops.

Vocabulary

1. Answer the questions.

1. What is the Internet?
2. What does computer network mean?
3. Which types of network do you know?
4. Why do we need modem?
5. What are the “duties” of server?
6. What kind of computers is used as servers?
7. What can you tell about the roots of the Internet?
8. Which services are provided by the Internet?
9. Which of the Internet services do you prefer to use mostly?
10. Does the Internet help you in your study or work? How?

2. Give the meanings of the following words:

1. LAN
2. WAN
3. WWW
4. The Internet
5. Browser
6. Server
7. The roots of the Internet
9. URL
10. Modem

3. Match the words in the left column with their definitions.

Basic circuits	A machine that can be used for different purposes
Compression	A series of actions that computer performs accepting data from users and producing a respond
Extension	A list of instructions written in a computer language
General purpose computer	Electronic devices
High level language	A programming language that communicates directly with the hardware
Low level language	A means of communication used between computers
Parallel processing	A programming language that must be processed through a compiler before they can be put to use
Process	A rough grouping of different file types by putting a tag in the end of the name
Program	Processing data through the use of two or more CPUs
Protocol	The process of packing data into lesser amount of storage space

4. Answer the questions:

1. What are the main trends of computer development?

2. Why do we need a supercomputer?
3. Why do we need to increase the speed of CPU?
4. Meta PAD, what does it mean?
5. Why is Meta PAD considered as a future mobile device?
6. Why is the speed of supercomputers incredibly high?
7. Who were the first pioneers in computer business?
8. Is the game worth the candle?
9. What are the three primary limits to performance at the supercomputer level?
10. Can you tell the difference between the latest model of a PC and supercomputer?

Grammar

1. Rearrange the words and get the right sentences:

1. processors/largest/128/machine/had/the/.
2. processor/had/cash/its/local/memory/own/each/.
3. between/to/define/in/computer/transitions/technology/are/enerations/hard/.
4. is/very/technology/becoming/widespread/network/.
5. a layer/is/on/a thin/of a/silicon/fabricated/microprocessor/surface/.
6. term/for/supercomputer/the fastest/computers/is/a broad/.
7. to serve/working/are/together/as/computer/atoms/memory/.
8. are/drivers/system/there/the/operating/in/.
9. must/operating/interact/all/the/with/system/applications/.
10. an industry/that/computer/to be/configured/the OS/standard/allows/peripherals/automatically/by/.

2. Supply the preposition if one is missing.

1. A new type of CPU was introduced.... the market.
- 2....the other hand, Intel instead of using one memory module connected each processor....its own memory.
3. Transitions between generations computer technology is hard to define.
4. Network will continue to improve the next several years.

5. A microprocessor is fabricated the surface of a thin semi-conductor layer.
6. The transistor size decreased ...6 down...0,18 microns.
7. The illustrated above tendency is keeping....
8. Some scientists are looking...possible alternatives.
9. The quantity of transistors in a microprocessor is...line with Moore's law.
10. Wearable computers will be built...people's clothing and jewelry.

3. Replace the italicized words by the words given in the list below.

Appear in; contemporary; dealing with errors and problems; desire; encourage; examine carefully and select; increase; not cease; payment; quickly; tremendous; understand.

1. A **modern** computer is capable of accepting many types of input.
2. Engineers quickly **realized** that writing in binary code was extremely difficult.
3. Writing software programs in numerical format was an **immense** task for anyone.
4. It **inspired** programmers to develop more software.
5. The general public's **appetite** for computer accessibility and capability began to **skyrocket**.
6. IBM began charging a separate **fee** for its software.
7. IBM choose DOS as its operating system, and when its open-architecture PC **hit** the market, programmers **jumped at the chance** to write application software for it.
8. Utilities perform **troubleshooting** jobs, inspecting diskettes for damage.
9. The popularity of word processing software **continued** to **escalate** and more tools were continuously added.
10. A consumer no longer has to go to a store, **sift through** hundreds of software titles, read descriptions of each to make a purchase decision.

4. Supply the articles where necessary.

1. ... scale of integration in... semiconductors continued at... incredible place.

2.... Disc Caches are designed to compensate for... speed discrepancy between... very fast CPU and... much slower disc drives.

3. ...largest computer had 128 processors.

4. ...term “vector” has... two common meanings.

5. On ... other hand, Intel connected each processor to its own memory.

6.... transitions between ... generations in... computer technology is hard to define.

7. This development has sparked... interest in heterogeneous computing.

8. ... microprocessor is fabricated on... surface of... thin silicon layer.

9. Such... electronic elements are usually called... chips.

10.... number of transistors and... speed of performance in this period were steadily increasing with... decreasing of transistor size.

5. Correct the mistakes in the sentences.

1. At the end of the 20th century an explosion of indirect connections to the Internet occurred.

2. At the beginning research was the main goal of the Internet.

3. A lot of people connected to the Internet at the large minority were home connections.

4. Computers are dispensable tools for computation, typing and communications.

5. Engineers can share results between the geographically dispersed team members.

6. People are irresponsible for the documents they author and make available publicity on the Web.

7. If you are willing to find unnecessary information over the Internet you must use browser.

8. A Web server is a program that, before receipt of a request, sends the document requested back.

9. Every browser had the built-in ability to understand the HTTP.

10. Search Engines help you to dislocate documents.

Reading

Read the text:

The Future of the Internet

Everywhere we go, we hear about the Internet. It's on television, in magazines, newspapers, and in schools. One might think that this network of millions of computers around the globe is as fast and captivating as television, but with more and more users logging on every day and staying on longer and longer, this «Information Superhighway» could be perhaps more correctly referred to as an expressway of big city center at rush hour.

It is estimated that thirty five to forty million users currently are on the Internet. According to a recent statistics, an average Internet call lasts five times as longer as the average regular telephone call. 10 percent of the Internet calls last 6 hours or longer. This can cause an overload and, in turn, cause telephone network to fail.

The local network was designed for short calls which you make and then hang up, but Internet calls often occupy a line for hours. With so many users in the Internet and their number is growing by 200 percent annually, it certainly provides new challenges for the telephone companies. The Internet, up to the beginning of the 90s, was used only to read different texts. Then in the early 90's, a way was made to see pictures and listen to a sound on the Internet. This breakthrough made the Internet to be most demanded means of communication, data saving and transporting.

However, today's net is much more than just pictures, text, and sound. The Internet is now filled with voice messages, video conferencing and video games. With voice messages, users can talk over the Internet for the price of the local phone call.

Nowadays we no longer have to own a computer to access the Internet. Now,-devices such as Web TV allow our television to browse the Web and use Electronic Mail. Cellular phones are now also dialing up the Internet to provide E-mail and answering machine services. The telephone network was not designed and built to handle these sorts of things. Many telephone companies are spending enormous amounts of money to upgrade the telephone lines.

K. Kao and G. Hackman were the first to come up with the idea of using fiber optic cables, as opposed to copper wire, to carry telephone signals. Fiber optics uses pulses of light to transmit binary code, such as that used in computers and other electronic devices. As a result the amount of bandwidth is incredibly raised. Another solution for the problem is fast modems which satisfy the need for speed.

By accessing the Net through the coaxial cable that provides television to our homes, the speed can be increased 1,000 fold. However, the cable system was built to only send information one way. In other words, they can send stuff to us, but we can't send anything back, if there is no modem available.

Yet another way is being introduced to access the Internet, and that is through the use of a satellite dish just like the TV dishes currently used to deliver television from satellites in space to your home. However, like cable connection, the information can only be sent one way.

Faster ways of connecting to the Internet may sound like a solution to the problem, but, just as new lanes on highways attract more cars, a faster Internet could attract many times more users, making it even slower than before.

To help solve the problem of Internet clogs, Internet providers are trying new ways of pricing for customers. So, in business time any connection to Net cost more than your connection in the night.

In conclusion, I should add that if we want to keep the Internet usable and fairly fast, we must not only improve the telephone lines and means of access, but also be reasonable in usage.

True or false

1. Thirty five to forty million users currently are on the Internet.
2. An average Internet call lasts ten times as longer as the average regular telephone call.
3. 10 percent of the Internet calls last 6 hours or longer.
4. The local network was designed for long calls.
5. The Internet, up to the beginning of the 90s, was used only to read different texts.
6. Today's net is just pictures, text, and sound.

7. Nowadays we no longer have to own a computer to access the Internet.
8. K. Kao and G. Hackman were the first to come up with the idea of using fiber optic cables, as opposed to copper wire, to carry telephone signals.
9. The cable system was built not only to send information one way.
10. In business time any connection to Net cost more than your connection in the night.

Reading

Read the text. Are the sentences true (T) or false (F)?

Wireless networks have limited range. Network range depends on the type of 802.11 protocol, the strength of the device transmitter and the architecture of the surrounding area. Some structures such as walls and metal frames reduce the range of a WLAN by 25%. However, users can extend the range of a WLAN. Repeaters forward the wireless signal to access points or routers and increase the range of a network. Bandwidth and latency are the measures of computer network speed, or data transfer rate. Bandwidth is the maximum throughput of data in bits per second. Some modems support 100 Gbit/s but speed depends on the hardware and software used. Latency is the delay that network creates during the transfer of data. Users have no or very little control over bandwidth and latency.

1. Wireless networks don't have a wide range. (T / F)
2. Network range depends on different factors. (T / F)
3. Walls and metal frames can increase the range of a WLAN. (T / F)
4. It's possible to increase the range of a WLAN. (T / F)
5. Data transfer rate is measured in bandwidth and latency. (T / F)
6. The minimum throughput of data in bits per second is the latency. (T/F)
7. Speed depends only on the hardware used. (T / F)
8. Users can control the latency. (T / F)
9. Bandwidth and latency are the measures of computer network speed. (T / F)
10. Some modems support 1000 Gbit/s (T / F)

Writing

Theme 1: Write an article into a magazine what is a computer and where it is used.

Theme 2: Your friend from England is interested about the most popular means of communication in your country. Write a letter in which you give an answer to this question.

Vocabulary

1. Fill in the gaps:

architect analyst burn hard insert programmer web-designer make officer pleased welcome

- 1 John designs networks. He's a network _____ .
- 2 I've got a new _____ disc drive for my laptop.
- 3 I must _____ some CDs.
- 4 Sarah is the new IT support _____ .
- 5 _____ the CD in the disc drive here.
- 6 _____ to meet you. I'm Pablo.
- 7 _____ to the team, Ahmed!
- 8 They _____ sure the system works well.
- 9 I make program codes. I am a _____ .
- 10 The appearance of the site depends on the _____ and his decisions.

2. Fill in the gaps:

design internet maintained navigation provides sells used webmasters website personal use

There are several types of websites on the (1) _____, many offering different things. For example, a commercial website (2) _____ products or services. These types of website are (3) _____ for promoting a business or service and are the most common type of website.

When you (4) _____ a commercial website, it is important to make sure that your visitors can move around easily in your site. Poor (5) _____ makes it difficult for people to find what they are looking for and they will leave. A news website (6) _____ information about current events and opinions. This kind of website should also encourage feedback from its visitors. In fact, many blogs are just a news site that covers current events and the views of the (7) _____ and visitors. A personal website is a website (8) _____ by an individual for(9) _____. Though similar to a blog, a personal website is usually much larger and contains the personal interests, hobbies, etc. of the person controlling the(10) _____.

3. Fill in the gaps:

attract firewall gateway network on open pay place private router with password

- 1 You pass through a(n) _____ to enter another network.
- 2 Is the software compatible _____ our computers?
- 3 The computers are all connected to the _____ .
- 4 Did you _____ the order for the new software yesterday?
- 5 We must _____ an account to shop online.
- 6 Companies use advertising to _____ customers.
- 7 I'll check the information _____ the internet.
- 8 You must have a(n) _____ to stop cyber attacks.
- 9 VPN stands for virtual _____ network.
- 10 When we go into your account, enter your login and _____ .

4. Choose the correct words in italics.

A: Why do we have to (1) follow / notify these new security procedures?

B: Because last month a (2) hijack / hacker got into our system. He installed (3) adware / spyware to see what we did on the computers.

A: That's terrible!

B: Yes, it is. And another time we had a (4) worm / firewall in the system. It destroyed everything on the hard drive. I (5) transferred / reported it to my supervisor when

I discovered it but it was too late to recover most of the files.

A: They're really dangerous, aren't they?

B: They can be. Did you (6) save / unplug your computer last night?

A: Yes, I did.

B: You shouldn't (7) disconnect / install it. It causes all(8) kinds/kinds of problems.

A: Oh dear! Sorry. I (9) checked / loaded new software onto it yesterday evening.

B: Did you (10) back up / put up your files before you did that?

A: Yes, of course.

B: You should be OK, then.

5. What is this called?

1. A person that works on a new idea, product.
2. To draw or plan something that you will make, plan or build.
3. A secret word that allows you to use a computer system or enter a place.
4. Someone whose job is to write digital code [= sets of instructions for computers]
5. A personal name that you use when using a computer system.
6. The part of a computer that controls what it does.
7. A piece of equipment in a computer that is used to store information.
8. A set of keys on a computer which you press to produce letters, numbers, etc.
9. A piece of computer equipment with a screen that shows information or pictures.
10. A board where all the circuits of a computer are placed.

Speaking

Theme 1: Who is Bill Gates?

Theme 2: Is watching TV bad for children?

Grammar

1. Choose the correct answer, A, B or C

My name (1) _____ Alicia and I work for GF Systems. I (2) _____ a programmer. I think GF is the (3) _____ company in its field. I (4) _____ got three other people in my team and I (5) _____ work in the office all the time. I (6) _____ work from home three days a week.

I (7) _____ from home today, creating a new office program. It's more efficient and (8) _____ than our existing program. Also I (9) _____ a design. But we usually create (10) _____ in a team.

- | | | |
|-------------------|--------------|-----------|
| 1 A has | B does | C is |
| 2 A are | B am | C is |
| 3 A better | B best | C good |
| 4 A has | B have | C am |
| 5 A don't have to | B mustn't | C can't |
| 6 A have | B am | C can |
| 7 A work | B am working | C working |
| 8 A fast | B fastest | C faster |
| 9 A create | B creates | C created |
| 10 A its | B it | C him |

2. Choose the correct answer, A, B or C

A: (1) _____ you help me with the new database, please?

B: (2) _____'s the problem?

A: I don't know how to access the information I need. (3) _____ isn't anything on the screen at the moment.

B: You (4) _____ have a new user name and password.
 A: I haven't got that. I'm using my old ones. (5) _____ doesn't it work with the old ones?
 B: They're all different for security reasons.
 A: OK. (6) _____ will I get the new ones?
 B: Tomorrow, (7) _____ worry. I can use mine to show you what to do. Look – that's the window you need.
 A: It (8) _____ a lot of information on it, hasn't it?
 B: Yes, it has. You must enter the code for the information you want. It's on this list here. (9) _____ it?
 A: Oh yes. (10) _____ quite easy, really. Thanks.

- | | | | |
|----|----------|------------|-------------|
| 1 | A Do | B Can | C Are |
| 2 | A What | B Which | C How |
| 3 | A It | B There | C That |
| 4 | A should | B could | C would |
| 5 | A How | B Why | C How often |
| 6 | A When | B How long | C Where |
| 7 | A don't | B doesn't | C aren't |
| 8 | A does | B has | C has got |
| 9 | A Know | B Right | C Got |
| 10 | A aren't | B It's | C will be |

3. Choose the correct answer, A, B or C.

We've got (1) _____ customers who shop for our products online. At the moment there are a (2) _____ problems with our website, so we've got (3) _____ very unhappy customers. This is (4) _____ last night the whole system (5) _____ down and we (6) _____ their orders. It (7) _____ all day to repair the system, (8) _____ we haven't had any online orders today. Half an hour (9) _____ a customer phoned to ask what is going on. We (10) _____ email all our customers to explain what happened and that we (11) _____ charge them for purchases that are delayed.

1	A any	B many	C much
2	A few	B lot	C little
3	A any	B some	C little
4	A so	B but	C because
5	A go	B gone	C went
6	A loss	B lose	C lost
7	A took	B taken	C take
8	A so	B but	C because
9	A last	B ago	C away
10	A won't	B will	C are
11	A won't	B aren't	C haven't

4. Choose the correct words in italics.

- 1 I *might* / *must* lose my work because I haven't backed up my files.
- 2 We aren't *allowed to* / *shouldn't* use social networking sites at work.
- 3 You *mustn't* / *mightn't* put your cup of coffee on the computer.
- 4 They aren't *mustn't* / *permitted* to share their passwords with anyone.
- 5 You *not allowed* / *shouldn't* use your date of birth as a password.
- 6 We *are permitted* / *might* have a virus in the system.
- 7 Employees *shouldn't* / *aren't* allowed to eat lunch at their desks.
- 8 You *mustn't* / *aren't permitted* to disconnect the keyboard.
- 9 There *should* / *may* be a problem with the server. I'm not sure.
- 10 I *might* / *can* be able to repair your computer.

5. Complete this conversation with will or won't.

- A: (1) _____ the new system be easy to use?
 B: Yes, it (2) _____ .
 A: What happens first?
 B: The customers (3) _____ type in all their details to register.
 A: (4) _____ they be able to place an order then?

B: No, they (5) _____ . They (6) _____ need an account number before they can do that. They (7) _____ be able to buy anything without this number.

A: (8) _____ the bank check the payment?

B: If the customer doesn't have the money to pay, the order (9) _____ be rejected and the customer (10) _____ get the products.

Vocabulary

1. Explain the meaning of the words:

Website-

Internet service provider -

Modem-

Central processing unit-

Keyboard-

Directory-

Mail box-

2. Insert the missing words using the clues:

Educational, sports, action, boardgames, role-playing adventure, racing, PC

You can play different types of games on a 1)..... 2).....games take you into a world of fantasy, magic and monsters.

You can do judo or manage a football team in a 3).....game.

You can drive a fast car or motorbike in a 4)..... game.

You can explore new lands and solve puzzles in an 5)..... game.

You can study many subjects in an 6)..... game.

Chess, backgammon and mah-jong are all 7)..... .

8)..... games take you into battle against other players.

3. Insert the missing words using the clues:

Global computer network, internet, modems, messages, e-mail

The 1)..... has already entered our ordinary life. Everybody knows that the Internet is 2)....., which embraces hundred of millions of users all over the world and helps us to communicate with each other. Invention of 3)....., special devices allowing your computer to send the information through the telephone line, has opened doors to the Internet for millions of people. Nowadays the most popular Internet service is 4)..... Most of the people use the network only for sending and receiving e-mail 5).....

4. Translate words:

- a) Approximately-
- b) Router-
- c) Notwithstanding-
- d) Huge-
- e) Tremendous-

5. Insert the missing words using the clues:

PC, Commercial, tremendous, service providers, information

1)..... users can communicate cheaply over the Internet with the rest of the world. When they send e-mail messages, they only have to pay for phone calls to their local 2)....., not for international calls around the world, when you pay a good deal of money to almost all the major 3)..... manufacturers. Big and serious problem of the net is control. Yes, there is no effective control in the Internet, because a huge amount of 4)..... circulating through the net. It is like a 5)..... library and market together. In the future, the situation might change, but now we have what we have. It could be expressed in two words – an anarchist's dream.

Grammar

1. Put the words in the correct form:

Television is one of the most important 1 _____ (**invent**) of the twentieth century. The first TV program was broadcast in 1929, and by the 2 _____ (**begin**) of the 1950s, almost every home had a television set. For the first time, people were able to watch 3 _____ (**history**) events, such as man's landing on the moon, in their homes. However, since its 4 _____ (**appear**), there has been a lot of 5 _____ (**disagree**) about the benefits of television.

Many people blame it for the lack of 6 _____ (**communicate**) in today's society. Instead of talking or playing games in the evenings, families prefer to watch their 7 _____ (**favor**) programs. People have become couch potatoes, sitting 8 _____ (**permanent**) in front of the TV and eating junk food. However, despite these drawbacks no one can deny the 9 _____ (**vary**) and interest television provides. Nowadays, with the 10 _____ (**develop**) of digital TV, hundreds of channels are available. More than ever before, television offers us a window on the world.

2. Complete the sentences with the correct form of be used too or be used for

1. Phone lines _____ connect computers to the Internet
2. The World Wide Web _____ accessing information
3. The Internet _____ sending e-mail messages
4. System software _____ run the hardware in a computer
5. Application software _____ doing specific tasks on a computer
6. CDs _____ storing information
7. Webcams _____ take photos and post them on the World Wide Web
8. Scanner _____ change photographs into digital images
9. A mouse _____ move the pointer on a computer screen
10. A keyboard _____ typing information on a computer

2. Put the words in the correct form:

There are different types of computer. The **(large)** and **(powerful)** are mainframe computers. Minicomputers are **(small)** than mainframes but are still very powerful. Microcomputers are small enough to sit on a desk. They are the **(common)** type of computer. They are usually **(powerful)** than minicomputers.

Portable computers are **(small)** than desktops. The **(large)** portable is a laptop. **(Small)** portables, about the size of a piece of writing paper, are called notebook computers. Subnotebooks are **(small)** than notebooks. You can hold the **(small)** computers in one hand. They are called handheld computers or palmtop computers.

3. Put the words in the correct form:

The Internet in our life

The Internet is widely **(speed)** all over the world. Millions of us have two different lives: one is in real world and other is online. The importance of the Internet can scarcely be **(overestimate)**. It gives us an ability to do and to have whatever we want. However, global network has not been always so popular.

In 2009 mankind celebrated forty years of Internet. Many of modern teens don't even know that the Internet is military invention. It was invented in 1969 during the cold war. USA tried to make stable connections between life-centers that would survive if nuclear war happened. Thankfully it never **(happen)** and hopefully it would never happen in future. So this invention was brought to civil life.

That time computer environment was not developed so far to let Internet spread all over the world. It took about 20 years to make this step. And after invention of phone modems Internet **(come)** into our houses. Later ADSL, Cable and other modems were also invented.

Every day millions of users open their favorite websites, use e-mail and other means of connection. By the way, ease of connection is one of the **(great)** achievements that were given to us by internet. It is not necessary to use

telephone to make international calls. **(Use)** Internet we can talk with our friends, relatives, co-workers from any country in the world.

Unfortunately nothing goes smooth in the first time. As we know, World Wide Web (WWW) is the source of information. And there is almost no censure. So there are some countries that limit usage of Internet. There are strong restrictions to visit international websites. These countries can be found in Arabic world.

The rest of us can freely use Internet as they want to. For example, you can make online purchases or sell your personal goods. You can find new friends or even love through Internet. It is a great world that made our life much **(easy)** and more interesting.

4. Put the words in the correct form:

This is where I work. The name of my company is Marshall Publishing. I **(start work)** here six years ago. I spend a lot of time on the phone, **(speak)** to our clients, especially in Japan and Saudi Arabia. It's lucky that they all speak very good English because I don't speak Japanese or Arabic! I also do some work in the advertising department of the company, **(help make)** adverts for radio stations around the world. That's my favorite part of the job.

It's not a big office and it's not very modern either, but we really like **(work)** here. There's only one computer and there's a lot of papers and files. It's like an office from ten years ago really. The walls are gray, although they should be white. They are dirty and we need to paint them again.

In my part of the office, there's me and then there are three others, Lucy, Helen and Paul. Paul is the new one. He **(arrive)** only three months ago. He was a lawyer before, then he decided he didn't want to be a lawyer any more, so he changed his job completely. I imagine he earns a lot less money with us! Helen arrived at Marshall Publishing only a month or two after me. She's my best friend in the office because we **(help)** each other a lot when we were both new. Lucy is the grandmother of the office. She **(start work)** here almost twelve years ago, when the company started. Everybody comes to her when there's a problem, when you have something you don't understand. She's a grandmother in real life too: she has 6 grandchildren!

The manager of the office is Liam. He's 39 years old and (**work**) for a large (**publish**) in London before taking this job. I think at the beginning, he felt a little strange, like an outsider. Now, he's one of the family. He's the best boss you could have!

Writing

Essay “What is Internet for my family ”

Essay “My first computer ”

Speaking

Topic: “The importance of the computer for me”

Topic: “Social networks”

UNIT 2

READING

Read the text:

Computers Make the World Smaller and Smarter

The ability of tiny computing devices to control complex operations has transformed the way many tasks are performed, ranging from scientific research to producing consumer products. Tiny 'computers on a chip' are used in medical equipment, home appliances, cars and toys. Workers use handheld computing devices to collect data at a customer site, to generate forms, to control inventory, and to serve as desktop organizers.

Not only is computing equipment getting smaller, it is getting more sophisticated. Computers are part of many machines and devices that once required continual human supervision and control. Today, computers in security systems result in safer environments, computers in cars improve energy efficiency, and computers in phones provide features such as call forwarding, call monitoring, and call answering.

These smart machines are designed to take over some of the basic tasks previously performed by people; by so doing, they make life a little easier and a little more pleasant.

Smart cards store vital information such as health records, drivers' licenses, bank balances, and so on. Smart phones, cars, and appliances with built in computers can be programmed to better meet individual needs. A smart house has a built-in monitoring system that can turn lights on and off, open and close windows, operate the oven, and more.

With small computing devices available for performing smart tasks like cooking dinner, programming the VCR, and controlling the flow of information in an organization, people are able to spend more time doing what they often do best-being creative. Computers can help people work more creatively.

Multimedia systems are known for their educational and entertainment value, which we call 'edutainment'. Multimedia combines text with sound,

video, animation, and graphics, which greatly enhances the interaction between user and machine and can make information more interesting and appealing to people. Expert systems software enables computers to 'think' like experts. Medical diagnosis expert systems, for example, can help doctors pinpoint a patient's illness, suggest further tests, and prescribe appropriate drugs.

Connectivity enables computers and software that might otherwise be incompatible to communicate and to share resources. Now that computers are proliferating in many areas and networks are available for people to access data and communicate with others, personal computers are becoming interpersonal PCs. They have the potential to significantly improve the way we relate to each other. Many people today telecommute – that is, use their computers to stay in touch with the office while they are working at home. With the proper tools, hospital staff can get a diagnosis from a medical expert hundreds or thousands of miles away. Similarly, the disabled can communicate more effectively with others using computers.

Distance learning and videoconferencing are concepts made possible with the use of an electronic classroom or boardroom accessible to people in remote locations. Vast databases of information are currently available to users of the Internet, all of whom can send mail messages to each other. The information superhighway is designed to significantly expand this interactive connectivity so that people all over the world will have free access to all these resources.

People power is critical to ensuring that hardware, software, and connectivity are effectively integrated in a socially responsible way. People - computer users and computer professionals - are the ones who will decide which hardware, software, and networks endure and how great an impact they will have on our lives. Ultimately people power must be exercised to ensure that computers are used not only efficiently but in a socially responsible way.

Look through the text and decide if the sentences are true (T) or false (F). Change the false sentences to make them true:

1. Desktop organizers are programs that require desktop computers.
2. A combination of text with sound, video, animation, and graphics is a presentation.

3. Computers are sometimes used to monitor systems that previously needed human supervision.
4. Networking is a way of allowing otherwise incompatible systems to communicate and share resources.
5. The use of computers prevents people from being creative.
6. Computer users do not have much influence over the way that computing develops.
7. Software that enables computers to 'think' like experts is professional system.
8. Information superhighway is Internet system designed to provide free, interactive access to vast resources for people all over the world.
9. Telecommute provides access to computers at the office while working at home.
10. Edutainment is multimedia materials with only educational content.

Reading

Read the text. Are the sentences true or false?

THE FIRST HACKERS

(1) The first "hackers" were students at the Massachusetts Institute of Technology (MIT) who belonged to the TMRC (Tech Model Railroad Club). Some of the members really built model trains. But many were more interested in the wires and circuits underneath the track platform. Spending hours at TMRC creating better circuitry was called "a mere hack." Those members who were interested in creating innovative, stylistic, and technically clever circuits called themselves (with pride) hackers.

(2) During the spring of 1959, a new course was offered at MIT, a freshman programming class. Soon the hackers of the railroad club were spending days, hours, and nights hacking away at their computer, an IBM 704. Instead of creating a better circuit, their hack became creating faster, more efficient program - with the least number of lines of code. Eventually they

formed a group and created the first set of hacker's rules, called the Hacker's Ethic.

(3) Steven Levy, in his book Hackers, presented the rules:

Rule 1: Access to computers - and anything, which might teach you, something about the way the world works - should be unlimited and total.

Rule 2: All information should be free.

Rule 3: Mistrust authority - promote decentralization.

Rule 4: Hackers should be judged by their hacking, not bogus criteria such as degrees, race, or position.

Rule 5: You can create art and beauty on a computer.

Rule 6: Computers can change your life for the better.

(4) These rules made programming at MIT's Artificial Intelligence Laboratory a challenging, encompassing endeavor. Just for the exhilaration of programming, students in the AI Lab would write a new program to perform even the smallest tasks. The program would be made available to others who would try to perform the same task with fewer instructions. The act of making the computer work more elegantly was inspiring to a hacker.

(5) Hackers were given free reign on the computer by two AI Lab professors, "Uncle" John McCarthy and Marvin Minsky, who realized that hacking created new insights. Over the years, the AI Lab created many innovations: LIFE, a game about survival; LISP, a new kind of programming language; the first computer chess game; The CAVE, the first computer adventure; and SPACEWAR, the first video game.

1. The first "hackers" were students at the Harvard University.
2. Spending hours at TMRC creating better circuitry was called "a mere hack".
3. Those members who weren't interested in creating innovative, stylistic, and technically clever circuits called themselves hackers.
4. During the autumn of 1959, a new course was offered at MIT, a freshman programming class.
5. Instead of creating a better circuit, their hack became creating faster, more efficient program - with the least number of lines of code.

6. They formed a group and created the first set of hacker's rules, called the Hacker's Culture.

7. Steven Levy, in his book Hackers, presented the rules.

8. Hackers should be judged by their hacking, not bogus criteria such as degrees, race, or position.

9. The program wouldn't be made available to others who would try to perform the same task with fewer instructions.

10. Over the years, the AI Lab created many innovations: a new kind of programming language; the first computer chess game; the first video game.

Vocabulary

1. Match the highlighted nouns in the text with the definitions below.

1. Data that is accurate and timely, specific and organized for a purpose, presented within a context that gives it meaning and relevance, and can lead to an increase in understanding and decrease in uncertainty.

2. The process of developing and implementing various sets of instructions to enable a computer to do a certain task. These instructions are considered computer programs and help the computer to operate smoothly.

3. Skilled computer programmer who breaks (hacks) a password code, or otherwise gains remote access to a protected computer system, mainly for the thrill of it.

2. Choose the correct adjectives.

1. It's **free** / **close** information. Right of a citizen to be informed in writing if a governmental agency holds certain information and to request its disclosure.

2. It's **efficient** / **inefficient** program. (Especially of a system or machine) achieving maximum productivity with minimum wasted effort or expense.

3. It's **genuine** / **bogus** criteria. Not genuine or true; fake.

3. Complete the phrases from the text.

1. _____ reign (5)
2. _____ rules (2)
3. _____ authority (3)
4. _____ hack (1)
5. _____ decentralization (3)

4. Complete the sentences with nouns from exercise 3.

1. Hackers were given _____ on the computer by two AI Lab professors.
2. _____ - promote _____.
3. Spending hours at TMRC creating better circuitry was called "_____."
4. Eventually they formed a group and created the first set of _____, called the Hacker's Ethic.

5. Write the words in the correct order.

- 1 information / be / All / should / free.
- 2 You / computer. / art and beauty / a / can / on / create
- 3 for / can / your / Computers / life / the / change / better / life
- 4 should be by / their / not/ Hackers / bogus / degrees/ criteria / hacking / such as / race / judged / or position
- 5 promote / Mistrust / decentralization. / authority

Grammar

1. Write the past simple form of the regular (1 - 4) and irregular (5 - 8) verbs.

- | | | | |
|------------|-------|----------|-------|
| 1. encode | _____ | 5. send | _____ |
| 2. compile | _____ | 6. teach | _____ |

3. equalize _____ 7. write _____
4. calculate _____ 8. draw _____

2. Write sentences with as...as and the adjective in brackets.

1. Harry hates waiting. Ann doesn't like waiting, either. (impatient)
2. Joe and Sally both love talking. (talkative)
3. George and Chris both think they're better than anyone else. (arrogant)

3. Underline the mistakes. Rewrite the sentences correctly.

1. I'm to old to learn a new language. _____
2. I'm not as smart than you. _____
3. Is you coat enough warm? _____

4. Write true sentences. Use the comparative form of the adjective in brackets.

1. silver / gold (expensive) _____
2. Pacific Ocean / Atlantic Ocean (wide) _____
3. Spain / Britain (sunny) _____

5. Write questions. Use the comparative form of the adjectives. Then answer them using your own ideas.

1. friendly / cats / dogs? _____
2. healthy / bread / cake? _____
3. dangerous / motorbikes / cars? _____

Speaking

1. Complete the dialogue. Use the Present Simple or Present Continuous form of the verbs in brackets.

Matt So, _____ (you / enjoy) the party?

Sam Yes, it's really good.

Matt Hey, I _____ (like) your shoes, Sam. They're cool.

Sam Thanks. They hurt me feet, though. That's why I _____
(not dance). You _____ (wear) trainers. They're much better for dancing.

Alice Hey, you two. _____ (you / want) to dance?

Sam No, thanks, Alice. Matt, you go ahead and dance.

Matt Uh, no thanks.

Alice But you _____ (love) dancing, Matt.

Matt Er, yes, but I _____ (not like) this band.

Sam Really? I _____ (love) them. Actually, I _____ (go) to
see them next month and I've got a spare ticket. Do you want to come, Alice?

Alice Yes, please!

2. Complete the dialogue with some or any.

Ann Are there _____ one-bedroom flats to rent in the center of
Suntown?

Agent Yes, but they're very expensive. There are _____ really nice
flats just outside the town.

Ann Have you got _____ pictures of them?

Agent Yes, I have. Look.

Ann Nice. Are there _____ shops nearby?

Agent Yes, there are _____ shops about 200 meters away.

Ann Great! I can't see _____ disadvantages!

Agent Do you have _____ pets?

Ann Well, I've got _____ fish.

Agent That's fine. There won't be _____ problems with fish.

Writing

Theme 1:

Describe how you use your computer in your study and in your free time

Theme 2:

Write an evaluation of some website of your choice.

Vocabulary

1. Find an IT term for each of these definitions.

1. Working at a distance
2. A system of numbers with 2 as its base
3. An operation system, used by many people.
4. 1048576 bytes of information.
5. A word processing feature which corrects by itself.
6. Set of computer instructions operating as one unit.
7. Having many different modes of input.
8. A computer higher in scale than any other.
9. A machine, which provides cash to bank customers without requiring a human operator.
10. A very small, but powerful processor

2. The artist is being interviewed. Make questions to match his answers. Use the correct form of the Past simple or Present perfect, whichever is correct. For example:

Question: What did you do yesterday?

Answer: Worked on the computer.

- 1 Q What...
A Worked on a CD of my paintings.
- 2 Q How many...
A About a third.
- 3 Q What...
A I destroyed them.
- 4 Q How...
A I scanned them in.
- 5 Q How...
A I've organized them into themes.
- 6 Q Have...
A Yes, I've added a sound track.

- 7 Q How long...
A It's taken me about a week.
- 8 Q When...
A I started about ten years ago.
- 9 Q What...
A Before I had a computer, I had to use slides.
- 10 Q Have...
A Yes, I've sold a few.

3. Describe the functions of these features:

1. In a window, vertical scrollbar.
2. The Find command
3. The Undo command
4. Cut and Paste
5. Print Screen
6. Menus
7. Recycle Bin
8. Tooltips
9. Sleep Mode
10. Screen Magnifier

4. Study this data about storage devices. Then complete the blanks in the following sentences comparing and contrasting the different types.

Device	Read/Write	Speed	Media Capacity	Media Removable	Cost
Floppy disk	Read and write	Slow	Very low	Yes	Low
Fixed hard disk	Read and write	Fast	Very high	No	Medium
Removable hard disk	Read and write	Medium to fast	High	Yes	Medium
CD-ROM	Read only	Medium	High	Yes	Low

CD-R	Recordable	Slow	High	Yes	Medium
CD-RW	Read and write	Medium	High	Yes	Medium
CD-MO	Read and write	Medium	High	Yes	High
DVD-ROM	Read only	Medium	High	Yes	Medium
DVD-RAM	Read and write	Medium	Very high	Yes	High
Magnetic Tape	Read and write	Very slow	High	Yes	Medium

1. You can write to hard disks _____ optical disks.
2. Floppy disks have a _____ capacity other devices.
3. CD-ROMs and floppy disks are _____ low priced.
4. DVD-RAM has a _____ capacity _____ other optical disks.
5. CD-ROMs cannot be re-recorded _____ some other optical disks can be.
6. _____ hard disks, you can read from and write to CD-MO drives.
7. _____ CD-ROMs, CD-Rs are recordable.
8. Magnetic tape is much _____ other devices.
9. _____ DVD-RAM and fixed hard disks have very high media capacity.
10. Floppy disks are cheap _____ DVD-RAM is expensive.

5. Study this list of needs. Which type of peripheral would you advise in each case?

1. Inputting printed graphics
2. Building cars
3. Controlling the screen cursor in a fast action game
4. Making choices on a screen in a public information terminal
5. Recording moving images

6. Recording a book loan in a library
7. Printing very high quality text and graphics
8. Creating drawings
9. Printing building plan drawings
10. Recording sound
11. Listening to music without disturbing others
12. Storing programs and data
13. Inputting a lot of text
14. Backing up large quantities of data

Speaking

Theme 1:

Find out this information from your friend. Make sure you use correct tenses in your questions.

- | | | |
|-----|-------------------------------|------------------|
| 1. | Download music from internet | [what site] |
| 2. | Send a video email attachment | [who to, when] |
| 3. | Make a presentation | [what theme] |
| 4. | Fit an expansion card | [which type] |
| 5. | Replace a hard disk | [what model] |
| 6. | Fix a printer fault | [what kind] |
| 7. | Make our own website | [how] |
| 8. | Have a virus | [which virus] |
| 9. | Watched TV on Internet | [which station] |
| 10. | Write a program | [which language] |

Theme 2:

Your friend has information about some popular operating systems. Find out the information from his answers to these questions:

- 1 Which operating system is used on Apple Macintosh microcomputers?
- 2 What is PowerPoint designed for?
- 3 Name one system used on IBM mainframes.
- 4 Which operating system is Linux related to?

- 5 Name an IBM operating system similar to MS-DOS.
- 6 Which operating system replaced MS-DOS?
- 7 Which systems are in fact graphically orientated shells for MS-DOS?
- 8 How many versions of Windows 9X were developed?
- 9 Which operating systems are designed for networks?
- 10 Which operating system is used by DEC VAX minicomputers?

Grammar

1. Complete these definitions with the correct participle of the verb given in brackets.

1. A gateway is an interface (enable) dissimilar network to communicate.
2. A bridge is a hardware and software combination (use) to connect the same type of networks.
3. A backbone is network transmission path (handle) major data traffic.
4. A router is a special computer (direct) message when several networks are linked.
5. A network is a number of computers and peripherals (link) together.
6. A LAN is a network (connect) computers over a small distance such as within a company.
7. A server is a powerful computer (store) many programs (share) by all the clients in the network.
8. A client is a network computer (use) for accessing a service on a server.
9. A thin client is a simple computer (comprise) a processor and memory, display, keyboard, mouse and hard drives only.
10. A hub is an electronic device (connect) all the data cabling in a network.

2. Up- and -up verbs: Complete each gap in these sentences with the appropriate form of the correct verb from this list:

back up keep up update
build up set up upgrade
catch up start up upload
free up

1. To avoid losing data, you should _____ your files regularly.
2. You can _____ your PC by adding a new motherboard.
3. Delete some files to _____ space on your hard disk.
4. Data is _____ from regional PCs to the company's mainframe each night.
5. The operating system boots when you _____ your computer.
6. She's taking a course to _____ her knowledge of computing.
7. The computer checks the memory when it _____.
8. He _____ a website to advertise his travel company.
9. You can _____ with developments by reading PC magazines.
10. If you miss a class, you can study the handouts to _____.
11. The image in a digital camera is _____ from a red, green and blue image.

3. Rewrite each of these sentences like this:

Firefighters extinguish fires.

Extinguishing fires is the task for firefighters.

1. An important function of the operating system is to manage the computer's resources.
2. One task of the supervisor program is to load into memory nonresident programs as required.
3. The role of the operating system is to communicate directly with the hardware.
4. One of the key functions of the operating system is to establish a user interface.
5. Main task of the heat sinks is to transfers the heat from system to cooler.
6. An additional role is to provide services for applications software.

7. Part of the work of mainframe operating systems is to support multiple programs and users.

8. The task in most cases is to facilitate interaction between a single user and a PC.

9. One of the most important functions of a computer is to process large amounts of data quickly.

10. The main reason for installing more memory is to allow the computer to process data faster.

4. Put the tenses in this dialogue in the correct form: Past simple or Present perfect.

1 A. What (do) today?

2 B. I (work) on my project. I (search) the Web for sites on digital cameras.

3 A. (find) any good ones?

4 B. I (find) several company sites - Sony, Canon, ... but I (want) one which (compare) all the models.

5 A. Which search engine (use)?

6 B. Dogpile mostly, (ever use) it?

7 A. Yes, I (try) it but I (have) more luck with Ask Jeeves. Why don't you try it?

8 B. I (have) enough for one night. I (spend) hours on that project.

9 A. I (not start) on mine yet.

10 B. Yeh? I bet you (do) it all.

5. Link these statements using a relative clause with a participle.

1 a The technology is here today.

b It is needed to set up a home network.

2 a You only need one network printer,

b It is connected to the server.

3 a Her house has a network.

b It allows basic file-sharing and multi-player gaming.

- 4 a There is a line receiver in the living room.
b It delivers home entertainment audio to speakers.
- 5 a Eve has designed a site,
b It is dedicated to dance.
- 6 a She has built in links.
b They connect her site to other dance sites.
- 7 a She created the site using a program called Netscape Composer.
b It is contained in Netscape Communicator.
- 8 a At the centre of France Telecom's home of tomorrow is a network.
b It is accessed through a Palm Pilot-style control pad.
- 9 a The network can simulate the owner's presence.
b This makes sure vital tasks are carried out in her absence.
- 10 a The house has an electronic door-keeper,
b It is programmed to recognise you. c This gives access to family only.

Reading

Read the texts:

INTEGRATED SERVICES DIGITAL NETWORK (ISDN)

ISDN services can be carried over existing telephone network infrastructure to terminal adapters (TAs) in the client machine. A common ISDN interface standard has a digital communications line consisting of three independent channels: two Bearer (B) channels, each at 64Kbit/s, and one Data (D) channel at 16Kbit/s. The D channel is used to carry signalling and supervisory information to the network, while the B channels carry the data and can be linked to provide a 128Kbit/s data channel.

WIRELESS CONNECTIONS

The wireless alternatives come in two forms: satellite and cellular. Satellite systems require the use of a modem to maintain the upload. Downstream bandwidth is provided via a dedicated satellite dish, connector hardware and proprietary software.

Cellular systems use assigned radio frequencies and are based around a network of transmitters that are arranged in a cellular network, much like cellular mobile phone systems.

THE CABLE ALTERNATIVE

Cable companies can also offer affordable broadband services over copper coaxial or fibre infrastructure networks. The connection is shared by several customers on a branch, so actual connection rates are variable, unlike ISDN and DSL.

DIGITAL SUBSCRIBER LINE (DSL)

DSL technology capitalizes on the existing network of copper infrastructure, but allows digital signals to be carried rather than analogue. It allows the full bandwidth of the copper twisted-pair telephone cabling to be utilized.

With splitter-based services, the DSL signal is pulled out from the phone line as it enters your premises and is wired separately to a DSL modem. This involves additional hardware and installation by the service provider at the customer site. The shielded option involves no installation, but the telephone company's equipment and some of your equipment might need upgrading.

With Asymmetric Digital Subscriber Line (ADSL), most of the duplex bandwidth is devoted to the downstream direction, with only a small proportion of bandwidth being available for upstream. Much Internet traffic through the client's connection, such as Web browsing, downloads and video streaming, needs high downstream bandwidth, but user requests and responses are less significant and therefore require less on the upstream. In addition, a small

proportion of the downstream bandwidth can be devoted to voice rather than data, allowing you to hold phone conversations without requiring a separate line.

DSL-based services are a very low-cost option when compared to other solutions offering similar bandwidth, so they can be made available to the customer at extremely competitive prices.

True/False

1. ISDN can only operate over a special digital telephone line
2. The Data channel is used to carry signaling and supervisory information to the network
3. Cellular systems use assigned radio frequencies
4. Two ISDN channels can be combined to give the user Double the bandwidth
5. Computers connected to a satellite system do not need a modem
6. Cellular networks work in a similar way to mobile phone systems.
7. DSL systems require a special digital telephone line
8. DSL system use analogue signals.
9. The DXL signal is pulled out from the phone line
10. You need separate line to hold normal phone conversation on an ADSL system

Writing

- 1 How do you use computer in your studies and in your free time?
2. The best protection of information system.

Vocabulary

1. Choose the best verb:

1. To turn on the computer, _____ the "Start" button.
a) touch b) press c) switch
2. The printer has _____ of ink.

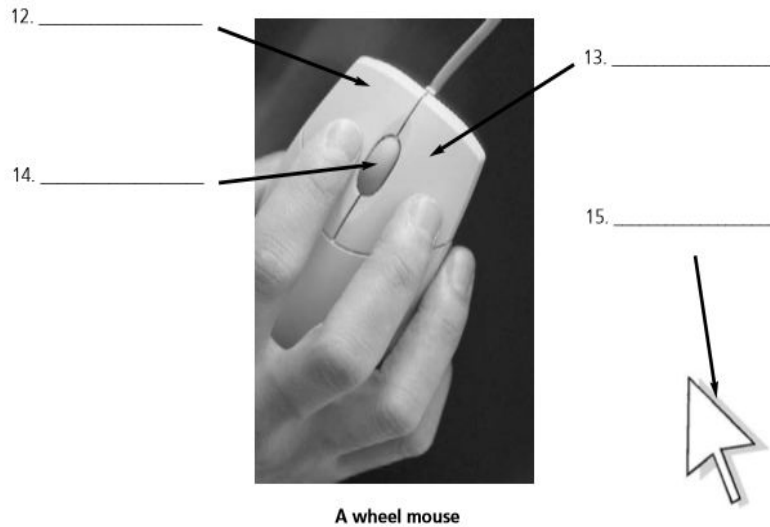
- a) finished b) ended c) run out
3. Unfortunately, my scanner isn't _____ at the moment.
- a) working b) going c) doing
4. Please _____ the CD ROM.
- a) insert b) introduce c) inject
5. The projector isn't working because it isn't _____.
- a) plugged b) plugged in c) plugged into
6. The batteries in my digital camera are nearly dead. They need _____.
- a) to change b) exchanging c) changing
7. I have to _____ a computer screen for eight hours a day.
- a) see b) look at c) watch
8. Switch off your computer, and _____ it from the wall socket.
- a) de-plug b) unplug c) non-plug
9. I turned off the photocopier and _____ the plug.
- a) pulled out b) extracted c) took away
- 10TV and computer screens are usually measured in _____.
- a) feet b) miles c) inches

2. Fill in the gaps with the words from the box:

pointer	on	optical	roll	scroll wheel
scroll up	scroll down	touchpad	left button	hold down
right button	joystick	single	double	repetitive
strain injury				

1. _____ to see pages above. 2. _____ to see pages below. 3. To select text, _____ the left button, and move the mouse pointer. 4. If you use a mouse for many hours every day, you can get _____ in your fingers. 5. With a laptop computer, plug in a mouse, or use the _____ in front of the keyboard. 6. To play some games, you need to use a _____ instead of a mouse. 7. To move up and down a page, you can _____ the mouse wheel. 8. This mouse doesn't have a ball. It's an _____ mouse. 9. One click of a mouse button is called a

_____ click. 10. Two clicks of a mouse button are called a
_____ click. 11. Click _____ the folder to open it.



3. Fill in the gaps:

1. Turn on your computer. It will usually take a few minutes to _____.
a boot itself b boot up c get booted
2. Windows XP, Macintosh OSX and Linux are _____.
a operating systems b operating tools c operators
3. On my computer, I have a picture of my cat as the _____.
a desktop background b desktop picture c desktop scene
4. Microsoft Word, Adobe Acrobat and CorelDraw are programs or _____.
a applicators b appliers c applications
5. To open Microsoft Word, click on the _____.
a picture b symbol c icon
6. I keep all my digital photos in a _____ called "Photos".
a folder b packet c box
7. Is it possible to open Microsoft Excel _____ in Word?
a texts b files c pages
8. In Microsoft Word, to start typing a new letter, open a new _____.
a document b page c paper
9. When you _____ a document, it's sent to the recycle bin.

- a destroy b erase c delete
 10. Deleted documents stay in the recycle bin until you _____ it.
 a wash b empty c clean

4. Match the definitions with the words below:

- | | | |
|----|---------------|---|
| 1 | word count | a) produces form letters and address labels |
| 2 | spell checker | b) counts the number of words, lines and paragraphs |
| 3 | auto format | c) finds all instances of a word or phrases in a document |
| 4 | template | d) checks the text for spelling errors |
| 5 | find | e) automatically changes the styles of headings, lists etc. |
| 6 | replace | f) shows how a document has been altered |
| 7 | print preview | g) records a sequence of commands, and applies them when required |
| 8 | track changes | h) a pre-formatted blank document – just type your text into the fields |
| 9 | mail merge | i) shows how the document will look in print |
| 10 | macro | j) replaces words or phrases in a document with new text |

5. Review crossword

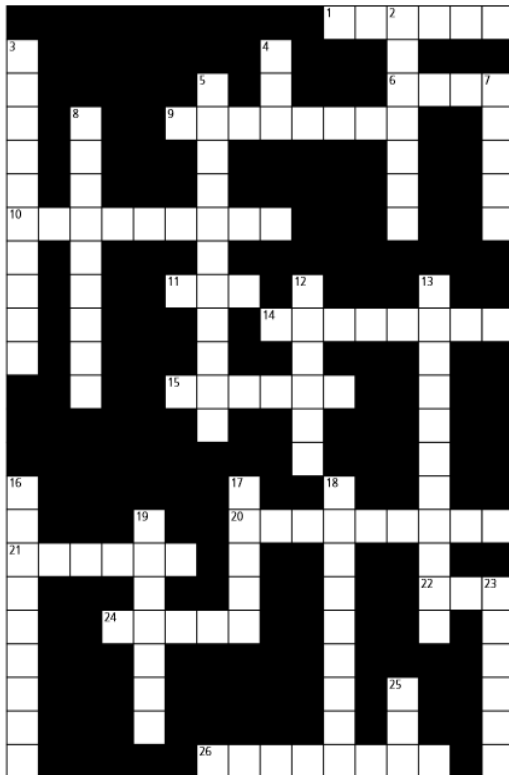
Across

1. A camera connected to the internet. (6 letters)
6. To send an SMS message. (4)
9. The most common page orientation. (8)
10. A computer's "brain". (9)
11. It prevents a computer from overheating. (3)
14. A connection without wires. (7)
15. The place where you put a plug. (6)
20. Processor speeds are measured in these. (9)
21. The cheapest type of printer. (6)
22. Lift this before you use your scanner. (3)

- 24. The shop assistant does this to your credit card. (5)
- 26. The strip on the back of a credit or debit card. (8)

Down

- 2. When it's dead, recharge it or replace it. (7)
- 3. You speak into this. (10)
- 4. The mouse moves on this. (3)
- 5. A computer, printer and scanner on a desk with a chair. (11)
- 7. Laser printers use this instead of ink. (5)
- 8. A design (for example, a type of keyboard) which is better for your body. (9)
- 12. An image on a screen is made up of thousands of these. (6)
- 13. Printers, scanners, webcams etc. (10)
- 16. A very large computer which never moves. (9)
- 17. A photo or drawing. (5)
- 18. You need to change or refill this when your printer runs out of ink. (9)
- 19. Two or more computers connected together. (7)
- 23. The slowest form of internet connection. (4, 2)
- 25. Image resolution is usually measured in this. (3)



Speaking

1. Do computers make the world smaller and smarter?
2. How many crimes on the Internet ?

Grammar

1. Put the tenses in this dialogue in the correct form: Past simple or Present perfect:

- 1 A: What (do) today?
2 B: I (work) on my project. I (search) the Web for sites on digital cameras.
3 A: (find) any good ones?
4 B: I (find) several company sites- Sony, Canon,..... but I (want) one which (compare) all the models.
5 A: Which search engine (use)?
6 B: Dogpile mostly. (ever use) it?
7 A: Yes, I (try) it but I (have) more luck with Ask Jeeves. Why don't you try it?
8 B: I (have) enough for one night. I (spend) hours on that project.
9 A: I (not start) on mine yet.
10 B: Yep? I bet you (do) it all.

2. Read the following extracts and put the verbs in brackets into the Present Simple or the Present Continuous. Then, say what use of these tenses each extract shows.

- A. These days, it seems everything 1) is changing (change). Cities
2) _____ (become) bigger and busier every year, technology
3) _____ (develop) faster than ever before, and scientists
4) _____ (learn) more about the way things work.

B. Water 1) _____ (boil) at 100°C and 2) _____ (freeze) when the temperature 3) _____ (drop) below 0°C. Salt water 4) _____ (be) different, however.

C. This film 1) _____ (be) great! It 2) _____ (have) an all-star cast and the script 3) _____ (be) very funny. The action 4) _____ (begin) when two young men 5) _____ (try) to rob a bank.

D. Rogers 1) _____ (kick) the ball and 2) _____ (pass) it to Jones. Jones 3) _____ (run) down the pitch. He 4) _____ (pass) the ball to Smith who 5) _____ (shoot) and 6) _____ (score)!

3. Fill in with the Present Simple or the Present Continuous, and then explain the meaning of each verb.

1. This food _____ (taste) delicious.
2. Mother _____ (taste) the sauce to see if it needs more salt.
3. I _____ (think) I'll buy the black dress, not the red one.
4. She _____ (think) of going to study abroad.
5. The Smiths _____ (have) a cottage in the mountains.
6. Susan _____ (have) dinner with her cousin Helen tonight.
7. After a short walk through the park, he always _____ (feel) relaxed and cheerful.
8. I _____ (feel) in my pocket for my keys.
9. Tom _____ (see) the company director in a few minutes.
10. When I open my bedroom window every morning, I _____ (see) the tall cypress tree in the garden.

4. Put the verbs in brackets into the Present Simple or the Present Continuous.

1. Dave _____ (live) in Glasgow and _____ (work) for an advertising company. He _____ (have) a good job and _____ (earn) a lot of money. He _____ (meet) many

people every day and _____ (lead) a busy life. The company _____ (expand) rapidly and today he _____ (see) a new client.

2. John and Anna _____ (fly) to Paris on Monday for a holiday. Their flight _____ (take off) at 7.10 in the morning and _____ (arrive) in Paris at 8.10. Anna's cousin _____ (own) a house there, so they _____ (stay) with him.

3. My neighbour _____ (bang) on the walls of his flat when he _____ (do) repairs. This week he _____ (install) a new bath, and the noise _____ (drive) me crazy. He _____ (not/seem) to care about the way he _____ (bother) other people.

4. Tom is an athlete. Every morning he _____ (swim) ten laps in the pool and _____ (lift) weights for an hour. This year he _____ (train) harder because he _____ (want) to compete in the next Olympic Games.

5. Put the verb into the correct form, the Present Simple or the Present Continuous.

1. Are you hungry? Do you want (you/want) something to eat?
2. Nicky _____ (think) of giving up her job.
3. (you/ believe) _____ in God?
4. I _____ (feel) hungry. Is there anything to eat?
5. Who is that man? What _____ (he/want)?
6. Who is that man? Why _____ (he/look) at us?
7. Alan says he's 80 years old, but nobody _____ (believe) him.
8. She told me her name, but I _____ (not/remember) it now.
9. Air _____ (consist) mainly of nitrogen and oxygen.
10. I can't understand why he _____ (be) so selfish. He isn't usually like that.

Vocabulary

1. Complete the sentences. Use one word in each gap.

1. _____ up the radio. I can't hear it.
2. Everybody pulls _____ the plug on his TV before going bed.
3. Your music is too loud. Can you turn it _____, please, or _____ on your headphones?
4. The museum is a special area. Please, switch _____ your mobile phones.
5. I need to charge my battery. Can I _____ in my phone at your house?
6. Don't take _____ your tablet PC. Someone might steal it. Leave it in your bag.
7. Sam! Your room is mess. Please put _____ all these clothes.
8. Ted, can you turn _____ radio?
9. There's really good music program on a minute.

2. Choose the correct word in the following sentences.

1. We must check/control the temperature regularly to make sure it doesn't rise.
2. To compare the number of defects over the last ten years, it would be best to use a Pareto/bar chart.
3. We try to detect/define faulty products before they are sent to our customers.
4. But it's a better idea to protect/prevent faulty products in the first place.
5. Making sure that materials are stored correctly is part of process/inventory control.
6. We're sending our engineer who will repair/remake the faulty motor.
7. We have had problems with the electronic equipment due to power errors/failures.

8. This process is very inefficient because of the volume of scrap/error left over.

9. Here is a list of things we could do to improve quality, and now we must define/prioritize them.

10. Improving the design quality of these cars will add value/variability.

3. Complete each gap in the following text with a phrase.

1. The computer monitor will _____ so you can see it on screen.

2. Information is stored on a computer as _____.

3. Spreadsheet and graphic software are examples of _____.

4. Digital communications and _____ have allowed developments in hardware to be made.

5. In order to organize data you should _____ where you can store data.

6. When several computers are linked together you have a _____

7. The part of the computer which interprets and carries out instructions is the _____

8. An _____ can be inserted in your computer to give your computer extra capabilities.

9. Acronym for light amplification by stimulated emission or radiation is _____.

10. _____ is capable of being deleted.

4. What electronic devices should these people buy?

1. Mike: 'My laptop is a bit old, and quite heavy.'

2. Mary: 'I like to listen to music while I'm walking in the park.'

3. Ted: 'My sister is always getting lost in her car.'

4. Sam: 'I want to make film of my summer visit to China.'

5. Jane: 'I like to read books, but they take up too much space.'

6. Ann: 'I like to take pictures, and I can store them on it.'

7. Paul and Jim: 'We can record over 100 hours of television programmes on it.'

5. Use the word in brackets to form a word which fits in the sentence.

1. The weak audio signal entering a radio is ____ by the ____ thus making it audible. (amplify)
2. Computer games are just one example of electronic systems being used for _____. (entertain)
3. Due to developments in mobile telecommunications systems, a new ____ of mobile phone is now available. (generate)
4. IC stands for ____ circuit. (integrate)
5. Computer software is ____ if it does what the manual says it should. (rely)
6. One area of electronics is concerned with the ____ of information. (store)
7. The ____ of signals to satellites is made by microwaves. (transmit)
8. A computer chip is capable of holding vast amounts of ____ information. (store)
9. ____ of speech was first carried out through ____ of the amplitude of a radio signal. (transmit, modulate)
10. In a laser, energy is released in the form of ____ light. (emit)

Grammar

1. Fill in the gaps, using Passive Voice.

1. This technology of defense of information ____ (investigate) two years ago.
2. The password or login ____ (enter) incorrectly, please repeat attempt This laptop ____ repair longer because of a special construction.
3. If the disk ____ (not read), then perhaps it ____ (damage). John, when you ____ (arrange) to work as the programmer.
4. This code ____ (write) correctly, but doesn't work because of the old version of the compiler.
5. The screen of your phone ____ (damage) because you haven't bought protective glass in time.

6. The virus ___ (find) in the system, immediate check is required.
7. Your level of knowledge of C++ _____ (has increased). Apple ___ (found) by Steve Jobs, Steve Wozniak, and Ronald Wayne in April 1976 to develop and sell personal computers.

2. Complete the following sentences with the adjective and adverb in brackets. Use each word once only.

1. The system will shut down _____. There is an _____ temperature control. (automatic/automatically)
2. New testing methods have made the process much more _____. Quality control runs more _____. (efficient/efficiently)
3. Our aim is to ensure _____ operation at the plant. The manufacturing process should run _____ (smooth/smoothly)
4. Demand for electricity is _____ lower in the evening. Statistics show that there is a _____ fall demand after 10 p.m. (general/generally)
5. People are becoming more interested in _____ friendly products. There is a growing interest in _____ issues. (environment/environmentally)
6. Safety products must be _____ observed to avoid accidents. The manager in a coal mine must be _____ about activities underground. (strict/strictly)

3. Fill in the gaps, using one of the next modal verbs: can/could, may/might, must, need/need to, used to.

1. You ___ learn several programming languages and get a job now, but you are too lazy.
2. Templates are a powerful tool that ___ be used for generic programming, template multiprogramming, and code optimization, but this power implies a cost.
3. The range of computer hardware and operating system platforms on which the source code of a program ___ be compiled and run.
4. These ___ be considered part of the programming process, but often the term software development is used for this larger process with the term

programming, implementation, or coding reserved for the actual writing of source code.

5. Whatever the approach to development ___ be, the final program ___ satisfy some fundamental properties.

6. Some programming languages are very popular for particular kinds of applications, while some languages are regularly ___ write many different kinds of applications.

7. User-created types ___ have the same support and performance as built-in types. (need to)

8. Any derived class inherits the virtual function as pure and ___ provide a non-pure definition of it (and all other pure virtual functions) before objects of the derived class ___ be created.

9. Any operand ___ be ignored by the operator, though it will be evaluated prior to execution.

10. Base classes ___ be declared as virtual; this is called virtual inheritance.

4. Complete the sentences using the words in brackets.

1. The tests won't be continued unless ____ (there/be/better safety measures).

2. He wouldn't have been injured if ____ (be/follow/the correct procedures).

3. In the event of a collision, ____ (the airbag/inflate).

4. If all vehicles were fitted with a catalytic converter, ____ (there/be/less/pollution).

5. The reaction would be speeded up if ____ (we/introduce/a catalyst).

6. If heat is applied, ____ (the substance/decompose).

7. As long as disinfectant is used, ____ (infections/not be/pass on).

8. If iron is left in contact with air and water, ____ (it/rust).

5. Complete the answers by putting the verb in brackets into the appropriate present tense in the active or passive.

1. A: Is the chief engineer here at the moment?
B: I'm afraid not. He _____ currently _____ the plant in the north of Scotland. (inspect)
2. A: Can I see the new design?
B: Yes, of course. It _____ just _____ off the production line. (come)
3. A: How many units do you produce a month?
B: We _____ 5.000 units a month and only a very small number _____.
(produce, reject)
4. A: How long have you been using imported raw materials?
B: We _____ (import) rayon for many years but we _____ only just _____
(begin) using imported polyester.
5. A: Is this the natural colour of the fabric?
B: No, this fabric _____ (dye).
6. A: And how long will it be kept in store?
B: Not long at all. We _____ (dispatch) this load tomorrow afternoon.

READING

Read the text:

Floppy Disk

A floppy disk is a data storage device that is a circular piece of thin, flexible (i.e. «floppy») magnetic storage in a square or rectangular plastic wallet.

Floppy disks, also known as floppies or diskettes (a name chosen in order to be similar to the word «cassette»), are used on home and personal computer («PC») platforms such as the Apple II, Macintosh, Commodore 64, Amiga, and IBM PC to transfer data between computers, and create small backups. Before the popularization of the hard drive for PCs, floppy disks were often used to store a computer's operating system (OS), application software, and other data. By the early 1990s, the increasing size of software meant that many programs were on sets of floppies. Toward the end of the 1990s, software distribution gradually switched to CD-ROM. With the arrival of mass Internet access, cheap Internet the floppy was no longer necessary for data transfer either, and the floppy disk was essentially replaced. One unsuccessful attempt in the late 1990s to continue the floppy was the Super Disk (LS120) with a capacity of 120 MB.

The 3.5-inch disk is made of two pieces of plastic, with the fabric-medium-fabric sandwich in the middle. The front has only a label for reading and writing data, protected by a metal cover, which is pushed back on entry into the drive.

The 3.5-inch floppy disk drive automatically engages when the user inserts a disk, and disengages and ejects with the press of a button, or by motor on the Apple Macintosh.

In general, data is written to floppy disks in a series of sectors, angular blocks of the disk, and in tracks, concentric rings at a constant radius, e.g. the HD format of 3.5-inch floppy disks uses bytes per sector, 18 sectors per track, 80 tracks per side and two sides, for a total of 1,474,560 bytes per disk. However, this is not the most efficient way to use the disk surface. Because the

sectors have a constant angular size, the 512 bytes in each sector are packed into a smaller length near the disk's center than nearer the disk's edge. A better technique would be to increase the number of sectors/track toward the outer edge of the disk, from 18 to 30 for instance, thereby keeping constant the amount of physical disk space used for storing each 512 byte sector.

True / False

1. A floppy disk is a data storage device that is a circular piece of thin, flexible magnetic storage in a square or rectangular plastic wallet.
2. Personal Computers also called "laptop".
3. Toward the end of the 1990s, software distribution gradually switched to CD-ROM.
4. One of the most successful attempts in the late 1990s to continue the floppy was the SuperDisk.
5. The SuperDisk had capacity of 360 MB.
6. The 3S-inch disk is made of two pieces of fibre, with the fabric-medium-fabric sandwich in the middle.
7. Data is written to floppy disks in a series of sectors, angular blocks of the disk, and in tracks, concentric rings at a constant radius.
8. The HD format of 3.5-inch floppy disks uses 1,474,560 bytes per disk totally.

Speaking

Dialogue 1

Customer: Good evening.

Technician: Can I help you?

Customer: Yes, I want my computer to be fixed.

Technician: What seems to be the problem?

Customer: My computer is having some trouble with its internal drive.

Technician: Let me see.

Customer: Certainly.

Technician: I guess it will take a couple of days to be fixed and different parts should be checked first.

Customer: Okay. Approximately, how much would it cost to fix my computer?

Technician: Right now I can't tell exactly because it will depend to the parts that are needed to be replaced.

Customer: Oh, I see. Please phone me right away about the progress.

Technician: Sure. I will phone you as soon as the computer is fixed.

Customer: Thanks. I appreciate it.

Dialogue 2

User: Something's wrong with my computer.

Consultant: What's the problem?

User: My computer won't turn on.

Consultant: Did you see if all the connections are right?

User: I'm not sure I understand what you mean.

Consultant: The connections between your CPU and your outlet.

User: Is that what's stopping my computer from turning on?

Consultant: If your plugs aren't connected all the way, the computer won't turn on.

User: I had no idea.

Consultant: Why don't you try it and see what happens?

User: I'll try it right now.

Consultant: Let me know if that doesn't work.

1. Read the text and write the annotation to it.

Pros and cons of computer games.

Nowadays computer technologies have become the main part of our daily life. Every day there are more computer software. And people already can't live without technologies. They study and work with help of computers, find information and, of course, play games.

Speaking about video games, needless to say, they're gaining popularity among teens and adults. But the game industry has its own pros and cons.

On the one hand, videogames have positive effect on players. For example, they can develop memory and reaction, sometimes even logical thinking and language skills. In online games, we can get to know more people, thus improving our relationship with society.

But games also have some disadvantages. First of all, they are very harmful to health. Because of long sitting near the computer the eyesight gets worse. The most important disadvantage is dependence of the gaming industry. Research University "Nottingham Trent University" called International Gaming Research Unit showed that 12% of the control group of 7000 people has symptoms of dependence on the computer games. 19% of 250 million Facebook users admitted that they feel a strong gambling addiction. Some authors believe that dependence arises because of online games.

Of course, games were created for fun, so you can enjoy, spending your spare time in any online game, but do not forget that later it can lead to gambling addiction.

2. Read the text and write the annotation to it.

The importance of computer skills in our life

Two years ago, if you ask people what do they think is the most important skill to be successful in the world; you will get a variety of answers. If you ask a person who is about my age the same question, presumably, eight out of ten will give the same answer as mine - computer skill is the most important skill a person should learn.

Why I think computer skill is the most important skill? First, computer skills such as operating a word processing software or typing are convenient and efficient. For example, I am writing this essay by using a computer. If I do not have computer skill, I cannot make a composition as quickly as possible; maybe I can only write on paper. Another vivid example is that many colleges is offering online classes for student to choose, which means the students can

study in the comfort of their homes and acquire their knowledge by means of using computer at home.

Secondly, computer is an important tool for teaching and communicating between teachers and students. Recently, school teachers have an increasingly demand on students to turning in their papers or school works, and the teachers can score on line. If the teacher has an assignment, they just send an e-mail to the students. In addition, many young people use computers to communicate with each other. They use online chat rooms, ICQs and messengers. They even play online games through the internet. Therefore computer skills are important for students to communicate with their teachers and fellow students.

Last but not least, computer skill helps a person to find a good job after they graduate. As we open newspapers and search for a good job, we can find that computer skill is a required skill for nearly every job. Indeed, whether you work as a receptionist, salesperson, warehouse manager and office clerk, you have to operate a computer and therefore computer skills is absolutely necessary for these jobs and most others.

Although there are many other important skills for a person to succeed in today's world, judging from what I have mentioned above, I think my point of view is solid and sound. Having computer skills is one of the most important things in today's world.

Vocabulary

1. Choose the best verb.

1. My computer is not capable of saving material on a separate because it has no floppy drive.

- a space
- b compact
- c disc
- d place

2. I had only had my computer for three weeks when I had to have the hard drive.....

- a replaced

- b restored
 - c retaken
 - d revived
3. Laptop computers are becoming more and more in the business world.
- a famous
 - b popular
 - c sought
 - d wished
4. Laptop computers are becoming more and more in the business world.
- a famous
 - b popular
 - c sought
 - d wished
5. You have to have a really mind in order to get your head round some of today's computing technology.
- a acute
 - b cut
 - c razor
 - d sharp.
6. The great advantage of having an external zip drive is that you can use it as an extra means of
- a hoarding
 - b keeping
 - c holding
 - d storage
7. They tried very hard to install the new components on the computer but the language in the manual was too for them to understand.
- a technical
 - b technique
 - c technician
 - d technically

8. When you look at the modern office today you could compare the changes with those that took place in the industrial in the 19th century.
- a revolt
 - b revolution
 - c revolting
 - d revolving
9. In order to the method by which staff pay is calculated the company has bought a new software package.
- a facile
 - b facility
 - c factual
 - d facilitate
10. Obviously a computer can take all the hard work out of a large mass of data.
- a proceeding
 - b procedure
 - c processing
 - d processes

2. Insert the correct word:

1. Similar to a television display or screen, a computer is what a person looks at and sees when he/she uses a computer.
2. A is a standard set of systematic buttons that is laid out on a pad-type device. People use this when they need to type words and operate a computer.
3. A is a machine that contains some type of printing method (whether ink-jet or laser) and creates printouts that are sent through computer programs.
4. Computers require electricity in order to run, so many come equipped with power supply These are attached to the computer and are plugged into electrical circuits in homes and businesses.

5. Some people use cameras when talking to loved ones and friends on the Internet. This is a device that plugs into a computer and transmits a video feed, in real time, of the person sitting in front of his/her computer.

cords; monitor; printer; keyboard; web

3. Choose the best adjective.

1. Without the right software I'm afraid you can't that particular program.

- a reach
- b access
- c obtain
- d find

2. The aim of the office manager is to enough room on the building plans so that each employee can have space for a personal computer.

- a arrange
- b accord
- c allocate
- d organize

3. Remember that before you leave your workstation, always your computer.

- a shut out
- b shut up
- c shut in
- d shut down

4. It's quite easy if you want to find folders and files on the computer, all you do is click here and it immediately starts

- a seeking
- b searching
- c looking
- d checking

5. I have tried and tried again and again and no matter what I do it still shows "error" — I just can't what's wrong.

- a look out
 - b check out
 - c figure out
 - d bring out
6. I spent hours writing that report and checking all the information was correct and then without thinking I pressed the button.
- a 'destroy'
 - b 'delete'
 - c 'deface'
 - d 'deny'
7. It's a really clever piece of software because it enables you to on your screen all the information in columns.
- a illustrate
 - b depict
 - c display
 - d delineate
8. Unfortunately this program is not with the operating system on my computer.
- a amicable
 - b compatible
 - c adaptable
 - d amenable

4. Fill in the blanks with the missing words.

1. The ___ of one computer stopped the whole work of a company.
2. Yesterday my brother bought a ___ device: it's a printer, a scanner and a fax.
3. If you want to look at the library collection, open this ___ program.
4. To install the driver, insert the CD into the ___ and follow the instructions of the computer.
5. If you have a problems with your hardware or ___, ask my friend Igor. He is a famous specialist, he has great ___, he can ___ any problem.
6. The hottest place in your computer is a ___.

7. Check your computer for _____. They can spoil your _____.
8. He uses the Internet only to _____ himself: he listens to the music, watches films and installs programs.

5. Study these instructions for a disk virus-checking. Fill in the gaps with verbs from this list.

Click Exit Put Select Start.

- 1- _____ the disk into the drive.
- 2- _____ the virus checking program.
- 3- _____ the drive to be checked.
- 4- _____ the "find" button.
- 5- _____ the program until the check is complete.
- 6- _____ "Yes" or "No" for checking another disk.

Grammar

1. Complete the sentences with *am / am not, is / is not, are / are not*.

1. He a mechanical engineer.
2. No, I a web designer, I an electronic engineer.
3. The technologist in his office.
4. These filesout-of-date.
5. John quite competent.
6. No, they electricians.
7. My friends and Istudents of the engineering faculty.
8. No, it a two-stroke engine, it a four-stroke engine.
9. Those screwdrivers new.
10. Where these tools from?

2. Fill in the blanks with *who or that + the correct form of the verb, using the tense given to complete the adjective clauses*.

1. I have a friend ____ who buys present: buy all her books online.

2. People present: buy books online can write reviews and give a book 1-5 stars.
3. A person present: read the reviews can be influenced by the opinions of others.
4. There are many neighborhood bookstores business and had to close because of online competition.
5. There are people present perfect: create successful businesses on the Internet.
6. Omidyar and Bezos are two people ____ the potential of the Internet.
7. Jeff Bezos is lucky to have parents ____ his idea.
8. Friendster and MySpace were two Internet companies ____ successful and then failed
8. Friendster and MySpace were two Internet companies ____ successful and the failed continued Subject which Subject that. Adjective Clauses, Descriptive Phrases 185.
9. When you buy something online, you often see this: “People ____ this product also bought”
10. You are encouraged to buy products _____ similar to your purchase.
11. Pierre Omidyar gives a lot of his money to organizations _____ people in need.

3. Work with a partner. Write a complete sentence, using the noun + the adjective clause given as the subject or object of your sentence. Write about computers, the Internet, or technology in general.

1. A computer that has little memory
2. Students who don't have a computer
3. Children who spend all their time playing computer games
4. E-mail that comes from an unknown sender
5. Websites that offer music downloads
6. People who don't know anything about computers
7. Kids who are born into today's world

8. A flash drive that has 10 MB of memory

4. Complete the sentences by putting the verb into the necessary tense form.

1. The security guard _____ (notice) the broken window while he was _____ (walk) round the warehouse.
2. ___ you _____ (manage) to see the Director or _____ he _____ (go) by the time you got there?
3. Could you help me? I _____ (try) to translate this letter from a Spanish client and I _____ (not know) what this word _____ (mean).
4. She _____ (not accept) the job because the salary _____ (be) too low.
5. Their shares _____ (fall) by over 23% and now it's a good time for us to buy them.
6. _____ you ever _____ (work) abroad ?
7. I didn't realize you had moved to Ciba Geigy. How long _____ (you/work) for them?
8. He felt very tired at 4.30 because he _____ (work) with his clients all day.
9. I first _____ (meet) Mr. Rodriguez when I _____ (go) round Mexico on a marketing trip.
10. I _____ (can not) get into the office yesterday morning because I _____ (leave) my keys at home.

5. Complete the sentences by putting the verb into the necessary tense form.

1. We _____ (do business) with that company a few years ago, but then we _____ (stop) dealing with them.
2. Not sure if his trip is going well. I _____ (not/hear) from him since Monday.
3. The lawyers _____ (draw) up the contracts, so we are now ready to go ahead with the deal.

4. _____ you _____ (talk) Peter yet?
5. Because of the recession, many businesses _____ (not/invest) in capital equipment over the last couple of years.
6. The accountant finally discovered why the phone bill was so high. One of the night security guards _____ (phone) his friend in Australia.
7. The auditor's _____ (notice) a large unauthorized withdrawal when they _____ (look) through the account.
8. I _____ (be) in computing since the beginning of 1989.
9. By the time he hold off the shares, his original investment _____ (grow) by 83%.
10. I am afraid Mr. Jackson is not available at the moment. He _____ (talk) to a customer on the other phone.

Reading

Read the text and write the annotation to it.

Computers

Computers are machines that can help us in many ways. But they cannot think or do things on their own. Humans have to feed them with information and tell them what to do with it. They cannot come up with any new information. But they can save much time and work. For example, all the information and the office files can be stored in a computer's "memory". If a clerk were to trace any information from a particular file, the computer would only take seconds to find it. It would take a clerk days or even weeks to go through every file if no computers were used.

The first computers were huge and costly. They filled up almost the whole floor of large offices. Later, because of the usefulness and demand for computers in business, scientists soon found ways to produce cheaper and smaller computers. They invented chips which made it possible to store more information in less space.

Today, computers are not only cheaper, but also more compact. They can just be placed on top of an ordinary writing table. They can even be carried from

place to place easily. Computers are not only used in offices by companies, but they are also used at home, by families who can afford them.

Robots, on the other hand, are not mechanical people. They are only moving parts controlled by a computer. A robot can do the same work for twenty four hours, and yet, it does not complain or get tired. In the United States robots are computers that tell them where to guard and what to do. These robots are programmed to listen for certain noises and signals for help in case of trouble or danger.

In Japan and in some places in America, robots are used in factories to assemble cars. As computers become more common businesses and factories, people fear that one day computers and computer controlled robots will put human workers out of work.

1. Say whether the following sentences are true or false. Correct the false sentences.

1. Computers can make their own decisions.
2. People fill the computer with all the information he possesses.
3. Office workers often use computers to store an important information in their “memory”.
4. It’s hard to find a necessary information in a computer’s memory.
5. The first computers were almost the same as modern.
6. With the invention of special chips that could store more information computers became much smaller.
7. Computers are more expensive in our time than they were in the past.
8. Computers can be used only by different companies and scientists.
9. Robots are popular in different countries around the world.
10. There is always a danger that computers can replace people in all working areas.

Writing

1. Yesterday you had a lecture “Computers are our future” by the famous programmer John Snow. Write a short report (100 words) to your university newspaper about the event.
2. Write a short article on the topic: “Computers and our life”. Include the following:
 - How have computers changed our everyday life?
 - Is it good or bad for people to rely on computers to solve their problems? Why or why not?

Speaking

Nowadays teenagers can't imagine their life without their favorite gadgets (mobile phones, computers and MP3 players). Talk about them. Include the following:

- Do they use gadgets every day? Why?
- How did these modern technologies change the life of teenagers?
- What would the life without these gadgets be like?

Vocabulary

1. Match the words with their meanings.

- | | | |
|----|------------------|---|
| 1. | WWW | A a place where you talk by typing |
| 2. | E-mail | B a secret word that only you and your parents know |
| 3. | Internet address | C a letter you spend through your computer |
| 4. | URL | D a hidden program that can hurt your computer |
| 5. | Chat Room | E advertising that comes to your e-mail address |
| 6. | Virus | F a name you choose that isn't your real name |
| 7. | Password | G an Internet address (Uniform Resource Locator) |
| 8. | SPAM | H a process of file transfer from the Internet |

- | | | |
|-----|-------------|--|
| 9. | Blog | I a place on the Internet you can visit |
| 10. | Screen Name | J an interconnection of computer information systems available via the Internet. |
| 11. | Internet | K another way to say URL |
| 12. | Web-site | L the world that only exists in the computer |
| 13. | Cyberspace | M a worldwide system of computers |
| 14. | Username | N another way to say 'username' |
| 15. | Download | O a journal you keep on the Web |

2. Complete the sentences. Use one word in each gap.

1. ____ up the radio. I can't hear it.
2. Everybody pulls ____ the plug on his TV before going bed.
3. Your music is too loud. Can you turn it ____, please, or ____ on your headphones?
4. The museum is a special area. Please, switch ____ your mobile phones.
5. I need to charge my battery. Can I ____ in my phone at your house?
6. Don't take ____ your tablet PC. Someone might steal it. Leave it in your bag.
7. Sam! Your room is mess. Please put ____ all these clothes.
8. Ted, can you turn ____ radio? There's really good music program on a minute.

3. What electronic devices should these people buy?

1. Mike: 'My laptop is a bit old, and quite heavy.'
2. Mary: 'I like to listen to music while I'm walking in the park.'
3. Ted: 'My sister is always getting lost in her car.'
4. Sam: 'I want to make film of my summer visit to China.'
5. Jane: 'I like to read books, but they take up too much space.'
6. Ann: 'I like to take pictures, and I can store them on it.'
7. Paul and Jim: 'We can record over 100 hours of television programmes on it.'

- 1) Notebook
- 2) MP3 player
- 3) Satnav
- 4) Camcorder
- 5) Ebook reader
- 6) Digital photo frame
- 7) Hard disc recorder

4. Choose one word from A with one word from B to complete the sentences below.

A	B
Space	computer
Computer-guided	goods
Satellite	robots
Consumer	technology
Navigation	communications
Personal	aids

1. _____ has enabled people to survive in space.
2. Communications systems for aircraft and ships are dependent on _____.
3. Many people today have their own _____ at home.
4. Industrial processes have been made more efficient through the use of _____.
5. Ships and aircraft require _____ to find their way.
6. _____ such as washing machines and dishwashers contain electronic circuits.

5. Use the word in brackets to form a word which fits in the sentence.

1. The weak audio signal entering a radio is _____ by the _____ thus making it audible. (amplify)

2. Computer games are just one example of electronic systems being used for ____ (entertain)
3. Due to developments in mobile telecommunications systems, a new ____ of mobile phone is now available. (generate)
4. IC stands for ____ circuit. (integrate)
5. Computer software is ____ if it does what the manual says it should. (rely)
6. One area of electronics is concerned with the ____ of information. (store)
7. The ____ of signals to satellites is made by microwaves. (transmit)
8. A computer chip is capable of holding vast amounts of ____ information. (store)
9. ____ of speech was first carried out through ____ of the amplitude of a radio signal. (transmit, modulate)
10. In a laser, energy is released in the form of ____ light. (emit)

Grammar

1. Complete the sentences with the words given in brackets.

1. There aren't ____ people working at night. ____ of staff work during the day. (most, many)
2. ____ of the timber which was delivered last week was of very poor quality. We had to return ____ of the boards. (a few, some)
3. We don't manufacture ____ jackets of pure wool. There isn't ____ demand for them. (many, much)
4. Fibre optic cabling will be used in the future for ____ land-based communications. But, today, only ____ of these communications use fibre optics. (all, some)
5. At present, only a ____ paper is recycled in the UK. In the future, a ____ more paper will have to be collected and recycled. (little, lot)
6. In the UK, ____ electricity is generated from nuclear energy or fossil fuels and very ____ renewable energy sources have so far been developed. (few, most)

2. Complete the following sentences with the adjective and adverb in brackets. Use each word once only.

1. The system will shut down _____. There is an _____ temperature control. (automatic/automatically)
2. New testing methods have made the process much more _____. Quality control runs more _____. (efficient/efficiently)
3. Our aim is to ensure _____ operation at the plant. The manufacturing process should run _____ (smooth/smoothly)
4. Demand for electricity is _____ lower in the evening. Statistics show that there is a _____ fall demand after 10 p.m. (general/generally)
5. People are becoming more interested in _____ friendly products. There is a growing interest in _____ issues. (environment/environmentally)
6. Safety products must be _____ observed to avoid accidents. The manager in a coal mine must be _____ about activities underground. (strict/strictly)

3. Choose the correct phrase in each of the following.

1. Just-in-time manufacturing methods result from/ result in a saving on storage costs.
2. The reject rate has fallen as a result of/ giving rise to control.
3. Poor quality materials were responsible for/ stem from product defects.
4. The machine broke down and resulted in/ because of poor maintenance.
5. Steel was used in the construction caused by/ on account of its strength.
6. Data was damaged as a result of/ giving rise to a virus in the system.
7. Transport costs have increased accounting for/ due to a rise in oil prices.
8. Stopping the use of certain chemicals in the process has brought about/ arises from a reduction in the number of cases of allergic skin reactions.

9. Most British coal mines have been closed because/ on account of they have become uneconomic.

10. The regeneration of plants and waterways account for/ is attributable to new legislation to stop pollution by industry.

11. There has been a large increase in the number of people who want to buy organic food products since/ as a consequence of fears about chemicals in food.

12. Environmental problems resulting from the disposal of plastics led to/ due to the development of biodegradable plastics.

4. Complete the next sentences using the words in brackets.

1. The tests won't be continued unless ____ (there/be/better safety measures).

2. He wouldn't have been injured if ____ (be/follow/the correct procedures).

3. In the event of a collision, ____ (the airbag/inflate).

4. If all vehicles were fitted with a catalytic converter, ____ (there/be/less/pollution).

5. The reaction would be speeded up if ____ (we/introduce/a catalyst).

6. If heat is applied, ____ (the substance/decompose).

7. As long as disinfectant is used, ____ (infections/not be/pass on).

8. If iron is left in contact with air and water, ____ (it/rust).

5. Complete the answers by putting the verb in brackets into the appropriate present tense in the active or passive.

1. A: Is the chief engineer here at the moment?

B: I'm afraid not. He ____ currently ____ the plant in the north of Scotland. (inspect)

2. A: Can I see the new design?

B: Yes, of course. It ____ just ____ off the production line. (come)

3. A: How many units do you produce a month?

B: We ____ 5.000 units a month and only a very small number ____.
(produce, reject)

4. A: How long have you been using imported raw materials?

B: We ____ (import) rayon for many years but we ____ only just ____
(begin) using imported polyester.

5. A: Is this the natural colour of the fabric?

B: No, this fabric ____ (dye).

6. A: And how long will it be kept in store?

B: Not long at all. We ____ (dispatch) this load tomorrow afternoon.

Reading

Read the text:

Personal computers: the early years

Until the late 1970s, the computer was a massive machine that was useful to big business and big government but not to the general public. Computers were too big and expensive for private use. As technology advanced, this was changed by a group of engineers and entrepreneurs who tried to improve the designs of that technology and to find ways to make the computer attractive to more people. Although these innovators of computer technology were very different from each other, they had a common enthusiasm for technical innovation and the capacity to foresee the potential of computers. Much of this activity was centred in the Silicon Valley in northern California, where the first computer-related company had opened in 1955. That company attracted thousands of related businesses, and the area became known as the technological capital of the world. Between 1981 and 1986, more than 1000 new technology-oriented businesses started there. At the busiest times, five or more new companies started in a single week. The Silicon Valley attracted many risk-takers and gave them an opportunity to live in an atmosphere where creativity was expected and rewarded.

Robert Noyce was a risk-taker who was successful both as an engineer and as an entrepreneur. The son of an Iowa minister, he was informal, genuine,

and methodical. Even when he was running one of the most successful businesses in the Silicon Valley, he dressed informally and his office was an open cubicle that looked like everyone else's. A graduate of the Massachusetts Institute of Technology (MIT), he started working for one of the first computer-related businesses in 1955. While working with these pioneers of computer engineering, he learned many things about computers and business management.

As an engineer, he co-invented the integrated circuit, which was the basis for later computer design. As a businessman, Noyce cofounded Intel, one of the most successful companies in the Silicon Valley and the first company to introduce the microprocessor. The microprocessor chip became the heart of the computer, making it possible for a large computer system that once filled a room to be contained on a small chip that could be held in one's hand. It made possible the invention of the personal computer and eventually led to the birth of thousands of new businesses. Noyce's contributions to the development of the integrated circuit and the microprocessor earned him both wealth and fame before his death in 1990.

In fact, many people consider his role to be one of the most important in the Silicon Valley story.

The two men who first introduced the personal computer (PC) to the marketplace neither prestigious university educations nor experience in big business. Twenty-year-old Steven Jobs and twenty four-year-old Stephen Wozniak were college computer hobbyists in a local computer club. Built in the garage of Jobs's parents, this first personal computer used the technology of Noyce's integrated circuit. It was typewriter-sized, as powerful as a much larger computer, and inexpensive to build. To get the \$1300 needed to fill their first orders, Jobs sold his Volkswagen bus and Wozniak sold his scientific calculator. Wozniak built and sold the first order of 100 computers in ten days. He used the least expensive materials, the fewest chips, and the most creative number of components. Wozniak designed the first model, and Jobs attracted interest from investors and buyers.

Wozniak once said that without Jobs he would never have thought of selling the computer or known how to do it. From the very beginning, Apple Computer had been sensitive to the needs of a general public. Jobs insisted that the computers be light and elegant. He also insisted that the language used with

the computers be «user-friendly» and that the operation be simple enough for a person to learn in a few minutes. These features helped convince a skeptical public that the computer was practical for home and small business. Jobs also introduced the idea of giving Apple Computers to thousands of California schools, thereby indirectly introducing his product into the homes of millions of students. Their second model, the Apple II, was the state-of-the-art PC in home and small business computers from 1977 to 1982. By 1983 the total company sales were almost \$600 million, and it controlled 23 per cent of the worldwide market in personal computers.

As the computer industry began to reach into homes and small businesses around the world, the need for many new products for the personal computer began to increase. Martin Alpert, the founder of Tecmar, Inc., was one of the first people to foresee this need. When IBM made its first personal computer in 1981, Alpert bought the first two models. He took them apart and worked twenty-four hours a day to find out how other products could be attached to them. For example, he designed memory extenders that enabled the computer to store more information, and insertable boards that allowed people to use different keyboards while sharing the same printer. After 1981, Tecmar produced one new product per week. Alpert had neither the technical training of Noyce nor the computer clubs of Jobs and Wozniak to encourage his interest in computer engineering. His parents were German refugees who worked in a factory and a bakery to pay for his college education. They insisted that he study medicine even though his interest was in electronics. His first electronics products were medical instruments that he built in his living room. His wife recognized the potential of his projects before he did, and finished a program in business management so she could run his electronics business successfully. Their annual sales reached \$1 million, and they had 15 engineers working in their living room before they moved to a larger building in 1981. It wasn't until 1983 that Alpert stopped practicing medicine and gave his full attention to Tecmar. By 1984 Tecmar cost \$150 million.

Computer technology has opened a variety of opportunities for people who are creative risk-takers. Rarely in history have so many people been so motivated to create. Many of them have been rewarded greatly with fame and fortune.

1. Say whether the following sentences are true or false. Correct the false sentences.

1. At the end of the 1970th computers were bought for the house because they were cheap and convenient in use.
2. The first computer-related company had opened in Washington in 1955.
3. Robert Noyce was a risk-taker who was successful both as an engineer and as an entrepreneur.
4. Noyce was a cofounder of one of the most successful companies in the Silicon Valley and the first company to introduce the microprocessor.
5. Wozniak is the single founder of Apple.
6. To get the \$1300 needed to fill their first orders, Jobs and Wozniak borrowed at the friends.
7. Wozniak built and sold the first order of 100 computers in short term.
8. The Apple II was the state-of-the-art PC in home and small business computers from 1977 to 1982.
9. Martin Alpert was the cofounder of Intel.
10. The first Alpert's electronics products were medical instruments.

Speaking

Confidence In Your Network

Customer: "I cannot get on VPN."

Me: "Okay, do you have any error message?"

Customer: "Hang on a second. First I have to connect to Wi-Fi right?"

Me: "Yes, that would help for sure."

Customer: "How do I do that? Shall I click on that bars icon?"

Me: "Yes, go ahead."

Customer: "Now I have a list of possibilities. Which is correct, [his, not very common, last name]'s network?"

Me: "That sounds like the one."

Customer: "Now it says 'connected'. What is next? Internet Explorer?"

Me: "Yes, and then go to VPN landing page."

Customer: "Oh, is it [exactly correct URL]?"

Me: "Yes, that is the one."

Customer: "Now what? It is asking for user name and password. Is it [correct ID] and [correct type of password]?"

Me: "Yes, go ahead."

Customer: "Oh, it says that I'm connected to VPN. Thank you very much for your help."

Me: "No problem, sir. I just do not know what should I put in your ticket."

Customer: "Oh put there that I just needed some confidence."

The Internet Problem

Secretary: - Good evening, New Link Company. My name is Dmitry. How can I help you?

David: - Hi! Could I speak with one of your support managers, Anton Razumovsky? Yesterday he promised me to solve the problem with my Internet connection, but it still doesn't work.

Dmitry: - Yes, just a second, I'll put you through. Could you give me your name?

David: - My name is David, David Smith. My id number is #97327701.

Dmitry: - Thank you for calling, Mr. Smith. Hold the line, please.

Anton: - Anton is speaking.

David: - Good evening, Mr. Razumovsky. My name is David Smith. I still have some problems with computer connection. Could you help me?

Anton: - Good evening! Could you remind me some details of your problem?

David: - Sure. About a week back, I just turned on my laptop and my Internet which usually connected automatically, just didn't work. My routing gateway was also turned on and all cables were perfectly in order, but, unfortunately, I couldn't go online. So, when I tried to connect the net, it became impossible again and again. And when I wanted to diagnose it, I just saw «The

system couldn't find a failure». I took the power out for 10 minutes and plugged it back in. But it doesn't pick up a signal. Help me, please!

Anton: - Ok, Mr. Smith. Plug the Internet cable into the laptop's connecter and check your Internet connection again by command in prompt: «ping site». Does it work now?

David: - Yes, it finally works! Oh, God! What was the matter?

Anton: - I suppose that your routing gateway is broken and you should fix or change it. Can I do anything else for you?

David: - No, that's enough. I'll leave a positive feedback on your website. Many thanks!

Anton: - You are welcome! If you have any other problems with a new routing gateway, just call us and our support managers help you to rectify it. Have a nice time. Good bye.

Read the text and write the annotation to it.

The history of the Internet

The history of the Internet begins with the development of electronic computers in the 1950s. Initial concepts of packet networking originated in several computer science laboratories in the United States, United Kingdom, and France. The US Department of Defense awarded contracts as early as the 1960s for packet network systems, including the development of the ARPANET. The first message was sent over the ARPANET from computer science Professor Leonard Kleinrock's laboratory at University of California, Los Angeles (UCLA) to the second network node at Stanford Research Institute (SRI).

Packet switching networks such as ARPANET, NPL network, CYCLADES, Merit Network, Tymnet, and Telenet, were developed in the late 1960s and early 1970s using a variety of communications protocols. Donald Davies first designed a packet-switched network at the National Physics Laboratory in the UK, which became a tested for UK research for almost two decades. The ARPANET project led to the development of protocols for internetworking, in which multiple separate networks could be joined into a network of networks.

Access to the ARPANET was expanded in 1981 when the National Science Foundation (NSF) funded the Computer Science Network (CSNET). In 1982, the Internet protocol suite (TCP/IP) was introduced as the standard networking protocol on the ARPANET. In the early 1980s the NSF funded the establishment for national supercomputing centers at several universities, and provided interconnectivity in 1986 with the NSFNET project, which also created network access to the supercomputer sites in the United States from research and education organizations. Commercial Internet service providers (ISPs) began to emerge in the very late 1980s. The ARPANET was decommissioned in 1990. Limited private connections to parts of the Internet by officially commercial entities emerged in several American cities by late 1989 and 1990, and the NSFNET was decommissioned in 1995, removing the last restrictions on the use of the Internet to carry commercial traffic.

In the 1980s, research at CERN in Switzerland by British computer scientist Tim Berners-Lee resulted in the World Wide Web, linking hypertext documents into an information system, accessible from any node on the network. Since the mid-1990s, the Internet has had a revolutionary impact on culture, commerce, and technology, including the rise of near-instant communication by electronic mail, instant messaging, voice over Internet Protocol (VoIP) telephone calls, two-way interactive video calls, and the World Wide Web with its discussion forums, blogs, social networking, and online shopping sites. The research and education community continues to develop and use advanced networks such as NSF's very high speed Backbone Network Service (vBNS), Internet2, and National Lambda Rail. Increasing amounts of data are transmitted at higher and higher speeds over fiber optic networks operating at 1-Gbit/s, 10-Gbit/s, or more. The Internet's takeover of the global communication landscape was almost instant in historical terms: it only communicated 1% of the information flowing through two-way telecommunications networks in the year 1993, already 51% by 2000, and more than 97% of the telecommunicated information by 2007. Today the Internet continues to grow, driven by ever greater amounts of online information, commerce, entertainment, and social networking.

Vocabulary

1. Complete the definitions using the words below.

*links Net blog log onto wireless router download video
chat get online CD-writer burn flash drive laptop*

1. _____ are connections between different web pages or different parts of a web page.
2. A _____ allows you to _____ and surf the Internet without plugging any wires into your computer.
3. A _____ is a diary that you write on the Internet.
4. If your computer has a _____, you can _____ information from your computer onto a CD.
5. To _____ is to communicate via the Internet with voice and video pictures.
6. A _____ is a very small, portable device for storing computer files.
7. You usually _____ a website by entering your username and password.
8. To _____ means to copy from the Internet onto your computer.
9. A _____ is a small, portable computer.
10. The _____ is another word for the Internet.

2. Match the parts of the sentences:

1. If you click on this link,
2. If you type in your password,
3. If you haven't got a DVD-writer,
4. If you plug this flash drive into the USB port,
5. If you haven't got broadband,
6. If you break your computer,
7. If you surf bad web sites,
8. If you are downloading a program for free,
9. If you need to work with texts,
10. If somebody writes an e-mail for you,

- a you can log onto this website.
- b the Internet connection works slowly.
- c you can't burn DVDs.
- d They should know your personal e-mail address.
- e you can get a computer virus.
- f you are actually braking a law.
- g your browser takes you to the Wikipedia website.
- h you can copy the files onto your laptop.
- i you can choose between different text editors.
- j you will have to pay a lot of money for fixing it.

3 *What electronic devices should these people buy?*

- 1. I like books, but they take up too much space.
- 2. I want to listen to music while I'm walking to school.
- 3. I want to make a film of my granddad's 80th birthday.
- 4. I love watching films on television. But I want a really clear and high-quality picture.
- 5. My mum's is always getting lost in her car.
- 6. My laptop is a bit old, and quite heavy.
- 7. I like to play shooters, but the mouse of my laptop is making the process very uncomfortable.
- 8. My notebook is getting very hot while playing computer games.
- 9. I like drawing pictures using Photoshop, but it's hard to do it using only mouse.
- 10. We don't like internet wires connected to our computer, they are annoying us.

4. *Match verbs with their meanings.*

- 1. access
- 2. back up
- 3. block
- 4. browse

5. bootstrap
6. burn
7. archive
8. burn in
9. call up
10. capture

a to put information or pictures into a form that can be used by a computer

b to use a piece of software continuously to check for problems

c to look for information on a computer, especially on the Internet

d to mark a piece of writing or other information on a computer screen so you can do something with it

e to collect and store computer files in an archive

f to get information, especially from a computer

g to make a copy of information on your computer

h to use the output of one piece of software as input to another, so that the results of the first process help to improve the results of the next one, and so on

i if you burn a CD-ROM, you put information onto it

j to make information in a computer appear on the screen

5. Complete the phrasal verbs.

in power out get on up into off offline wipe

1. Turn _____

2. Log _____

3. Turn _____

4. Hook _____ to

5. Hack _____

6. _____ up

7. _____ online

8. Go _____

9. Print _____

10. _____ out

Grammar

1. Complete the sentences using the correct form of there is.

1. _____ to many people to make everybody well fed yesterday.
2. _____ a lot of wars if politicians don't change their mind.
3. _____ a lot of delicious food on the previous Christmas party.
4. _____ too many criminals in the world.
5. _____ a cool performance on the school show last Monday.
6. _____ so much fun on my birthday party, I promise.
7. _____ a new salary system provided next year.
8. _____ a lot of different models to choose in the shop.
9. _____ so many chances that I lost.
10. _____ no reason to call for a doctor yesterday.

2. Fill in the blanks with the correct form of the following verbs to make correct continuous sentences.

work study look look after sleep go fight come play have

1. John _____ a brake now.
2. I _____ in my bedroom five minutes ago.
3. She _____ home in 3 hours.
4. He _____ on his new project now.
5. Oliver _____ hard because of his exams.
6. I'm _____ for bread. Where can I find it?
7. My mom _____ my little brother last Friday.
8. Vitalik Politician _____ against Tyson Fury tomorrow evening.
9. Dad _____ home in five minutes.
10. Susan _____ the guitar in his room now.

3. Combine the following pairs of sentences using a participle.

1. He was rejected by his family. He decided to become a monk.
2. Who is that pretty girl? She is sitting in the corner.

3. Many people were invited to the party. Most of them didn't turn up.
4. I didn't know what to do. I called the police.
5. He was sitting at a table. The table was covered with papers.
6. Who is that girl? She is dancing with your brother.
7. She had lost much blood. She became unconscious.
8. I failed my engineering exams. I took up cheating.

4. Put the verbs into the correct form. Use going to.

1. It (rain) _____.
2. They (eat) _____ stew.
3. I (wear) _____ blue shoes tonight.
4. We (not / help) _____ you.
5. Jack (not / come) _____ home.
6. (cook / you) _____ dinner?
7. Sue (share / not) _____ her biscuits.
8. (leave / they) _____ the house.
9. (take part / she) _____ in the contest?
10. I (not / spend) _____ my holiday abroad this year.

5. Complete the sentences using some or any.

1. There's chocolate in the cupboard.
2. Do you have brothers or sisters?
3. Did you make mistakes?
4. Would you like cake?
5. I am going to buy fruit and vegetables.
6. I would like white paper, please.
7. And do you have envelopes?
8. I found money this week.
9. Do you have of his records?
10. Do you know of her friends?

Reading

Read the text:

Japanese translating machines make languages less foreign

The machine clearly does not like poetry. It won't touch the stuff. Nor is it very fond of novels. Theoretically, it could cope with some of Hemingway's short, simple sentences, though it could never make anything of long, convoluted passages from Faulkner. But give the Toshiba AS-TRANSAC computer an instruction manual, and it will earnestly chomp its way through page after page. What it does with those pages is the amazing part. The Toshiba machine has linguistic ability far beyond the powers of past generations of computers: it can translate, at least crudely, one language into another. In this case, the computer converts simple English into serviceable, if stilted Japanese. The AS-TRANSAC is one of more than half a dozen machine-translation systems being energetically developed in Japan. and a growing need to disseminate their documents around the world, the Japanese urgently require computers that can translate. A few machines, such as Toshiba model and Fujitsu's Atlas system, are already in operation, helping Japanese companies like Mazda translate technical material. A powerful computer called SHALT, designed by IBM Japan, is being used extensively for in-house translations. In 1988 SHALT converted four IBM manuals from English into Japanese. This year the target is 20 to 30. Predicts Kiyotaka Yasui, manager of the language and image-technology section at IBM Japan's Tokyo research laboratory: «In five years the internal-publication department of IBM Japan will be fulfilling 100% of its translation requirements via machines».

But human translators should have no fear that their jobs are imperiled – at least for now. None of the new systems are yet able to take a page of text and render it unerringly into a different language without the aid of a bilingual editor who can fine-tune the output for ambiguities in the vocabulary, to say nothing of shades of meaning. «A truly automatic system is a dream at the moment», admits manager of Toshiba's computer product-planning department. «Machine translation is only to reduce the work involved in human translation».

And that it does. The present generation of machine-translation systems, which are priced between \$30,000 and \$70,000 can nearly double the output of translators of technical documents. The savings, especially for small firms unable to maintain a large staff of skilled translators, can be considerable. «Seven or eight years ago,» says Koichi Takeda, a researcher at IBM Japan, «everyone was saying machine translation was a technology of the future. But now we have it».

Considering the complexity of the task, the progress in machine translation has been startling. Essentially, the translating machine analyzes the syntax of an English sentence, and identifying, for example, the subject, verb, objects and modifiers. Then the words are translated by an English-Japanese dictionary. Next, another part of the computer program analyzes the resulting awkward jumble of words and, and generates an intelligible sentence based on the rules of Japanese syntax and the machine's understanding of what the original English sentence meant.

That is not as simple as it sounds (assuming it sounds at all). Each computer company has devised strikingly different sets of programs to deal with the complexities of the two languages. One step in the IBM system, for example, refashions the English sentence structure and word order to resemble Japanese syntax. The result occasionally reads like the faulty work of a ninth-grade Japanese student of English. The articles and subjects are gone, and the verb dangles clumsily at the end. Only after the English sentence has been transformed into Japanese syntax are the words translated.

With their strong thirst for information from other nations that can translate freely among several different languages. Fujitsu, for example, has a prototype called Atlas 2 that can deal with Japanese, French, German and English. In the near future, Spanish, Chinese and Korean will be added. To make such systems as simple as possible, programmers have invented a coded, largely numerical language called «interlingual».

Instead of translating directly from Japanese into German, the computer would translate from Japanese into interlingual and then into German. This process cuts down on the number of dictionaries that programmers have to construct. A Japanese-German, Japanese-French or Japanese-Spanish. Explains Hiroshi Uchida, a researcher at Fujitsu: «It we did not use interlingual, then each

pair of languages would require the development of a specific set of grammatical rules and a bilingual dictionary. Interlingual acts as the hub of a wheel».

The market for such machines will be vast. Says Yasuyo Kikuta, a researcher in artificial intelligence at Fujitsu: «Since we Japanese have so much trouble in the area of foreign languages, machine translation is the kind of tool all Japanese desire». And since many people in other nations are not linguistic whizzes either, sales of the electronic translators should be brisk around the world.

Decide whether the following statements are true (T) or false (F):

1. The translating machine are able to translate poetry quite well.
2. The Toshiba translating machine has linguistic ability far beyond the powers of past generations of computers.
3. The progress in machine translation has been startling.
4. Each computer company has devised strikingly different sets of programs to deal with the complexities of the two languages.
5. Instead of translating directly from Japanese into German, the computer would translate from German into interlingual and then into Japanese.
6. The result occasionally reads like the faulty work of a ninth-grade Japanese student of English.
7. The present generation of machine-translation systems, which are priced between \$30,000 and \$70,000 can nearly double the output of translators of technical documents.
8. A few machines, are already in operation, helping Japanese companies like Mazda translate technical material.
9. Instead of translating directly from Japanese into German, the computer would translate from Japanese into interlingual and then into German.
10. The translating machine can't analyze the syntax of an English sentence.

Write a dialogue between two friends.

The theme of the conversation: Hooking Up My Computer

Peter: Hi Jack. Can you give me a hand?

Jack: Sure, what's up?

Peter: I've just bought a new computer and I'm having some problems hooking everything up.

Jack:... and I'm a geek. Yeah, I know. I'd be happy to help.

Peter: Thanks! I've connected all the cables from my monitor, mouse and keyboard, and I've plugged it in.

Jack: Have you installed the software yet?

Peter: No, I haven't. Do I need to?

Jack: Not always, but it's best to install drivers for your keyboard and mouse, as well as your printer.

Peter: Will the computer boot up without those?

Jack: Of course. Boot up the computer and then we can update the drives.

Peter: OK. What's that thing (points to a computer component)

Jack: Oh, that's a memory reader. You can insert things like SD cards from your camera and mp3 players into it.

Peter: That's handy.

Jack: You've bought a nice system. How big is the hard drive?

Peter: I think it's 750 gigabyte.

Jack: Good... The computer's booted up. Let's install those drivers.

Peter: Before we do that, can I get online?

Jack: Do you have a modem?

Peter: Yes, I do. I think I have a cable modem.

Jack: hmmm... yes you do. Is the Ethernet cable plugged in?

Peter: What's that?

Jack: It's the cable that connects your modem to your computer.

Peter: Let's surf the internet!

Jack: Just a moment... first we need to launch the browser.

Peter: The browser?

Jack: It's the program that allows you to surf the internet.

Peter: oh ... I've got a lot to learn.

Jack: Yes, you do. I can see I'm going to be here all day ...

Grammar

1. Which of the sentences below are passive constructions?

1. The firewall software and antivirus software are disabled.
2. Yesterday I contacted the software manufacturer.
3. I share all my files with my neighbour.
4. All computers in the office are connected to a hub.
5. What IP address is assigned to your computer?
6. All computers in the office are using Windows XP sp2.
7. Interference is caused by microwaves or mobile phones.
8. I protected my computer using a good firewall.
9. You need to upgrade your OS.
10. All the files in my computer can be viewed but they cannot be modified.

2. Write passive sentences from the words in brackets. All sentences are present.

1. (all these computers / scan / every day)
All these computers are scanned every day.
2. (All shipments / deliver / on Thursdays)
.....
3. (this processor / make / of silicon)
.....
4. (this computer / not use / very often)
.....
5. (how often / these printers / cleaned?)
.....
6. (the firewall / disable)
.....
7. (all the resources / share / with the other PCs)
.....
8. (the transfer rate / check / automatically)

.....
9. (what / this machine / use for?)
.....

10. (the processor / place / into the socket)
.....

4. Re-write the following active sentences into passive voice.

1. We use different Internet browsers.
2. My boss wrote an e-mail of confirmation.
3. Someone uses my computer.
4. In this computer store they don't accept credit cards.
5. People wash CDs with soap and water

Vocabulary

1. Write the word in the right column.

Input Output Storage

CD-ROM disk, Laser Printer, Digital camera, Light pen, Dot-matrix printer, Magneto-optical disk, Fixed hard disk, Magnetic tape, Floppy disk, Microphone, Inkjet printer, Monitor, Joystick, Removable hard disk, Keyboard, Scanner.

2. Choose the correct word to fill the spaces.

1. Turn on your computer. It will usually take a few minutes to _____.
a) boot itself b) boot up c) get booted
2. Windows XP, Macintosh OSX and Linux are _____.
a) operating systems b) operating tools c) operators
3. On my computer, I have a picture of my cat as the _____.
a) desktop background b) desktop picture c) desktop scene
4. Microsoft Word, Adobe Acrobat and CorelDraw are programs or _____.
a) applicators b) appliers c) applications

5. To open Microsoft Word, click on the _____.
 a) picture b) symbol c) icon
6. I keep all my digital photos in a _____ called "Photos".
 a) folder b) packet c) box
7. Is it possible to open Microsoft Excel _____ in Word?
 a) texts b) files c) pages
8. In Microsoft Word, to start typing a new letter, open a new _____.
 a) document b) page c) paper
9. When you _____ a document, it's sent to the recycle bin.
 a) destroy b) erase c) delete
10. Deleted documents stay in the recycle bin until you _____ it.
 a) wash b) empty c) clean

3. Match each word from column A (1-8) with its partner from column B (a-h) to make a computing term.

- | | |
|---|---|
| <p>A</p> <ol style="list-style-type: none"> 1.Memory 2.Power 3.Function 4.Expansion 5.Bar 6.Floppy 7.Disk 8.Cache | <p>B</p> <ol style="list-style-type: none"> a. Code b. Key c. Drive d. Supply e. Card f. Chip g. Memory h. Disk |
|---|---|

4. Complete the sentences below with the words from your active vocabulary list.

1. You can use this kind of network (to share/to transmit) files, a printer or another peripheral device, and even an Internet connection.
2. A (router / server) is a small hardware device that joins multiple networks together.
3. WLAN is a LAN based on (private/wireless) network technology.

4. A computer network (topology/model) is the physical communication scheme used by connected devices.

5. Each device in the network, whether it's a computer, printer, scanner, or whatever, is called a (host/node).

6. In computer networking, a (server/client) is a computer designed to process requests and deliver data to other computers over a local network or the Internet.

7. Networking is the practice of linking computing devices together with hardware and software that supports data (retrievement/transmission) across these devices.

8. The world's most popular public (node/network) is the Internet.

9. On a (client-server/ peer-to-peer) network all computers tend to support the same functions.

10. In addition to operating in a limited space, a (LAN/server) is typically owned, controlled, and managed by a single person or organization.

5. In each sentence make a word to fill the space, using the word given.

1. Boot viruses run when the user ... the computer from the infected disk.
(to boot)

2. Before computer networks became ..., most viruses spread on floppy disks.
(to spread)

3. The Internet ... the spread of viruses. (to facilitate)

4. A virus can spread from one computer to another when its host is taken to the ... computer. (to infect)

5. Some viruses can be ..., for example, by destroying data. (to destroy)

6. In computer security technology, a virus is a ... program. (to replicate)

7. The ... of the virus into a program is called infection. (to insert)

8. The ... file is called a host. (to infect)

READING

Read the text:

FBI TEAMS UP WITH BUSINESS TO FIGHT CYBER CRIME

WASHINGTON January 5 (Reuters) – The FBI announced on Friday the completion of a program that seeks to combat cyber crime by encouraging companies to share information about Internet attacks they have experienced.

Participating companies and the FBI would use encrypted e-mail and a secure Web site to warn each other about new hacking attempts, computer viruses and other Internet-based criminal activity.

By encouraging communication among high-tech companies, the FBI hopes to reduce the impact of Internet crime, which according to one estimate takes a \$1.6 trillion annually out of the global economy.

The FBI is currently investigating 1,200 cyber crime cases, up from 450 in early 1998, said Michael Vatis, head of the FBI's National Infrastructure Protection Center. Attorney General Janet Reno said high-tech businesses and the FBI must cooperate to fight cyber crime, and that the InfraGard program was an important step.

“This will assist individual companies in providing a stronger, better-informed first line of defense against computer attacks,” Reno said.

InfraGard started as a pilot project in Cleveland in 1996. Since then it has been expanded to all 56 regional FBI offices and has attracted the participation of 500 companies. Representatives of academic computer centers and high-tech firms such as IBM sit on the board.

Participation in the program is free, Vatis said, but companies must undergo a criminal background check before they are admitted. Participating companies can remain anonymous if they desire, and are not required to share confidential information.

“That is the key to all of this, that companies can share only as much information as they want,” Vatis said.

In addition to using the national online communication system, InfraGard companies can organize local activities such as seminars and workshops to better educate themselves about Internet security.

Vatis said the InfraGard system was used last fall to alert companies to the existence of ‘zombies’, or hostile computer programs, on their servers. Zombies are used to launch denial-of-service attacks such as the one that swamped Yahoo! and other Web sites with massive amounts of data last February.

1. Decide which statements are true and which are false:

1. The FBI has developed the computer program InfraGard.
2. It is thought that computer thieves take approximately 1.6 trillion dollars out of the world economy every year.
3. The number of cyber crime cases has doubled since 1998.
4. Companies have to pay the FBI to use InfraGard.
5. Janet Reno believes that high-tech companies and the FBI have to work together to help stop Internet crime.
6. If they use InfraGard companies have to share all their information with the public.
7. The program helps companies to communicate with each other about Internet crime like computer viruses or computer hacking.
8. InfraGard did not begin as a trial project. Instead, it was used in all the FBI offices immediately.
9. InfraGard is a program that helps communication between companies by offering coded e-mail and a Web site that is meant to be secure from hackers and computer criminals.
10. Last fall companies found out about unfriendly computer programs called ‘zombies’ because of the InfraGard system.
11. Several zombies stopped people receiving information service from Yahoo! by swamping it with huge amounts of data.

Speaking

Read the following dialogues and make your own ones on the similar topic:

1. The Internet

Andy: Tell me Ross, how often do you use the Internet?

Ross: Rather often, I'd say. I use it every day, because I need to check my e-mail, to read the news, to chat with friends. Why are you asking anyway?

Andy: I'm trying to make a survey with answers about the Internet and its frequency of use. I've already asked seven people and now I need to compare the facts. Do you mind being one of my respondents?

Ross: No, not at all. What other questions are on your list?

Andy: What's the first thing you do when you go online?

Ross: Well, first of all I check my e-mail, then I surf the Internet for necessary information.

Andy: What type of information do you usually search for?

Ross: I search for anything that's concerned my studies. I need lots of new information for doing my homework.

Andy: Do you simply copy what you find?

Ross: No, our teachers won't accept any foolish copying. I try to adapt the information to my tasks. I also try to write everything in my own words.

Andy: I see. How about music? Do you use the Internet to listen to music?

Ross: Yes, of course. I always listen to online radio. Moreover, I sometimes surf the Internet for song lyrics.

Andy: Do you read books or magazines online?

Ross: I don't read magazines that much, but e-books are definitely useful.

Andy: How many times a day do you use the Internet? This is one of the most important questions on my survey list.

Ross: I've never paid attention to it, but I think more than five times.

Andy: Thank you. This information is very useful for me.

Ross: Do you have any other questions?

Andy: Yes, few more questions. Can you tell me what your favourite website is?

Ross: I like many websites. Some are connected with music, others with films and books. However, my favourite website is Wikipedia, because it gives answers to most of the questions. It also helps me greatly with my studies.

Andy: Do you use social networks or chats? If yes, then what for?

Ross: Of course. I have lots of friends in social networks. I like chatting with them, exchanging music, postcards and simply interesting or funny information. I don't use various chat. In my opinion, social networks are more handy for that. Sometimes I use skype, when I want to talk to friends or relatives, who currently live in other countries.

Andy: Two more questions. Do you use online dictionaries?

Ross: Yes, I sometimes do. Online dictionaries save lots of time and effort.

Andy: Could you live a day without the Internet?

Ross: My answer is no. I think that nowadays nearly everyone is addicted to this computer tool. All people have computers or laptops in their houses and they definitely use the Internet every day. I am not an exception.

Andy: I see. Thanks for helping me. Now I have enough information for my survey.

Ross: You're welcome!

2. Computer problems

Anna : Hi Jason, Sorry to bother you. I have a question for you.

Jason : OK, what`s up?

Anna : I`ve been having a problem with my computer. I know you`re an engineer so I thought you might be able to help me.

Jason : I see. What`s the problem?

Anna : I have a file that I can`t open for some reason.

Jason : What type of file is it?

Anna : It`s a Word document I`ve been working on. I need to finish it by tomorrow.

Jason : Were you able to open it before, on the computer you`re using now?

Anna : Yes, I was working on it last night and everything was fine, but this morning I couldn`t open the file.

Jason : Do you think your computer might have a virus?

Anna : No, I checked and there weren't any.

Jason : OK. I'm not sure what's wrong. If it's possible, email the file to me and I'll see if I can get it to open.

Anna : OK, I'll do that when I get home. Are you going to be around tonight?

Jason : Yeah, I'll be home after 8PM. Send it to me when you get a chance and I'll call you later.

Read the text and write the annotation to it.

1. Computers

Generally, any device that can perform numerical calculations, even an adding machine, may be called a computer but nowadays this term is used especially for digital computers. Computers that once weighed 30 tons now may weigh as little as 1.8 kilograms. Microchips and microprocessors have considerably reduced the cost of the electronic components required in a computer. Computers come in many sizes and shapes such as special-purpose, laptop, desktop, minicomputers, supercomputers.

Special-purpose computers can perform specific tasks and their operations are limited to the programs built into their microchips. These computers are the basis for electronic calculators and can be found in thousands of electronic products, including digital watches and automobiles. Basically, these computers do the ordinary arithmetic operations such as addition, subtraction, multiplication and division.

General-purpose computers are much more powerful because they can accept new sets of instructions. The smallest fully functional computers are called laptop computers. Most of the general-purpose computers known as personal or desktop computers can perform almost 5 million operations per second.

Today's personal computers are known to be used for different purposes: for testing new theories or models that cannot be examined with experiments, as valuable educational tools due to various encyclopedias, dictionaries,

educational programs, in book-keeping, accounting and management. Proper application of computing equipment in different industries is likely to result in proper management, effective distribution of materials and resources, more efficient production and trade.

Minicomputers are high-speed computers that have greater data manipulating capabilities than personal computers do and that can be used simultaneously by many users. These machines are primarily used by larger businesses or by large research and university centers.

The speed and power of supercomputers, the highest class of computers, are almost beyond comprehension, and their capabilities are continually being improved. The most complex of these machines can perform nearly 32 billion calculations per second and store 1 billion characters in memory at one time, and can do in one hour what a desktop computer would take 40 years to do. They are used commonly by government agencies and large research centers. Linking together networks of several small computer centers and programming them to use a common language has enabled engineers to create the supercomputer. The aim of this technology is to elaborate a machine that could perform a trillion calculations per second.

Read the text and write the annotation to it.

2. Computer crimes

(1) More and more, the operations of our businesses, governments, and financial institutions are controlled by information that exists only inside computer memories. Anyone clever enough to modify this information for his own purposes can reap substantial rewards. Even worse, a number of people who have done this and been caught at it have managed to get away without punishment.

(2) These facts have not been lost on criminals or would-be criminals. A recent Stanford Research Institute study of computer abuse was based on 160 case histories, which probably are just the proverbial tip of the iceberg. After all, we only know about the unsuccessful crimes. How many successful ones have gone undetected is anybody's guess.

(3) Here are a few areas in which computer criminals have found the pickings all too easy.

(4) Banking. All but the smallest banks now keep their accounts on computer files. Someone who knows how to change the numbers in the files can transfer funds at will. For instance, one programmer was caught having the computer transfer funds from other people's accounts to his wife's checking account. Often, tradition ally trained auditors don't know enough about the workings of computers to catch what is taking place right under their noses.

(5) Business. A company that uses computers extensively offers many opportunities to both dishonest employees and clever outsiders. For instance, a thief can have the computer ship the company's products to addresses of his own choosing. Or he can have it issue checks to him or his confederates for imaginary supplies or services. People have been caught doing both.

(6) Credit Cards. There is a trend toward using cards similar to credit cards to gain access to funds through cash-dispensing terminals. Yet, in the past, organized crime has used stolen or counterfeit credit cards to finance its operations. Banks that offer after-hours or remote banking through cash-dispensing terminals may find themselves unwillingly subsidizing organized crime.

(7) Theft of Information. Much personal information about individuals is now stored in computer files. An unauthorized person with access to this information could use it for blackmail. Also, confidential information about a company's products or operations can be stolen and sold to unscrupulous competitors. (One attempt at the latter came to light when the competitor turned out to be scrupulous and turned in the people who were trying to sell him stolen information.)

(8) Software Theft. The software for a computer system is often more expensive than the hardware. Yet this expensive software is all too easy to copy. Crooked computer experts have devised a variety of tricks for getting these expensive programs printed out, punched on cards, recorded on tape, or otherwise delivered into their hands. This crime has even been perpetrated from remote terminals that access the computer over the telephone.

(9) Theft of Time-Sharing Services. When the public is given access to a system, some members of the public often discover how to use the system in

unauthorized ways. For example, there are the "phone thieves" who avoid long distance telephone charges by sending over their phones control signals that are identical to those used by the telephone company.

(10) Since time-sharing systems often are accessible to anyone who dials the right telephone number, they are subject to the same kinds of manipulation.

(11) Of course, most systems use account numbers and passwords to restrict access to authorized users. But unauthorized persons have proved to be adept at obtaining this information and using it for their own benefit. For instance, when a police computer system was demonstrated to a school class, a precocious student noted the access codes being used; later, all the student's teachers turned up on a list of wanted criminals.

(12) Perfect Crimes. It's easy for computer crimes to go undetected if no one checks up on what the computer is doing. But even if the crime is detected, the criminal may walk away not only unpunished but with a glowing recommendation from his former employers.

(13) Of course, we have no statistics on crimes that go undetected. But it's unsettling to note how many of the crimes we do know about were detected by accident, not by systematic audits or other security procedures. The computer criminals who have been caught may have been the victims of uncommonly bad luck.

(14) For example, a certain keypunch operator complained of having to stay overtime to punch extra cards. Investigation revealed that the extra cards she was being asked to punch were for fraudulent transactions. In another case, disgruntled employees of the thief tipped off the company that was being robbed. An undercover narcotics agent stumbled on still another case. An employee was selling the company's merchandise on the side and using the computer to get it shipped to the buyers. While negotiating for LSD, the narcotics agent was offered a good deal on a stereo!

(15) Unlike other embezzlers, who must leave the country, commit suicide, or go to jail, computer criminals sometimes brazen it out, demanding not only that they not be prosecuted but also that they be given good recommendations and perhaps other benefits, such as severance pay. All too often, their demands have been met.

(16) Why? Because company executives are afraid of the bad publicity that would result if the public found out that their computer had been misused. They cringe at the thought of a criminal boasting in open court of how he juggled the most confidential records right under the noses of the company's executives, accountants, and security staff. And so another computer criminal departs with just the recommendations he needs to continue his exploits elsewhere.

Vocabulary

1. Fill in the gaps in the sentences. Write no more than one word: mouse, keys, keyboard, monitor, speakers.

1. The ...is also known as the VDU which stands for Visual Display Unit
2. The ...is used for typing text, numbers and special characters on the computer
3. ...is pointing device
4. ...help us to listen to recorded music, songs, speech or other sounds
- 5....help to hear sound generated by a computer without disturbing others
6. Different ...have different functions.

2. Match the following words with their explanation:

computer, input, output, software, hardware, storage, CPU, ALU, CU, program

- a) an electronic device accepting data processing results from the computer system;
- b) the unit performing arithmetic operations called for in the instructions;
- c) the unit coordinating all the activities of various components of the computer. It reads information, interprets instructions, performs operations, etc.;
- d) a set of programs designed to control the operation of a computer;
- e) lists of instructions followed by the CU of the CPU;
- f) an electronic device keying information into the computer;

g) the unit holding all data to be processed, intermediate and final results of processing;

h) visible units, physical components of a data processing system;

i) the unit that directs the sequence of system operations, selects instructions and interprets them;

j) a device with a complex network of electronic circuits that can process information, make decisions, and replace people in routine tasks.

3. Complete the paragraph below with the words in the box:

compress, directories, folders, subdirectories, subfolders

Files can be organized into and and This allows the user to create categories for files which can be organized and accessed easily. It is possible to and, to save them, rename them, move them or copy them from one area to another. It is possible to or files so that they use less space. This can be useful, for example, when sending files via email. File compression programs such as WinZip can be used to do this.

4. Match the words in the box with their definitions below. Then compare your answer with a partner.

Menu Icon Word processor Click Cursor

1. is a list of computer operations.
2. is a small picture or symbol.
3. is software for creating text files (e. g., Microsoft Word).
4. means to press and release the button on the mouse.
5. is a little arrow on the screen that moves when you move the mouse.

Reading

Read the text and tick the correct sentences:

A computer, as everyone thinks at first – a typical personal computer, or PC. Here is one of the thoughts about the PC: The PC is a general information processing device. It can receive information from a person (via input devices similar to the keyboard and mouse), from the device (like a diskette or CD) or from a link (via a modem or network card) and process it.

After processing, the information is presented to the user (on the monitor), it is stored on the device (hard disk) or sent somewhere else over the network (via modem or network card). PC is a device built around a microprocessor. It has many different parts - memory, hard drive, modem, etc., that work together. In our life we have many special purpose processors. MP3-player is a specialized device for processing MP3 files. But that is not all. GP is a specialized device for circulating GP signals. And that's not all. Gameboy is a specialized device for handling games, but this is not the limit of possibilities either.

The PC can do this all because it is a general purpose device. "Utility" means that you can do many different things with a PC. You can use it to print documents, send e-mail, browse the internet and play games.

1. When someone thinks of a computer it is usually a personal computer.
2. A PC is a general-purpose device and it can only process information.
3. It can't get information from nobody except a person.
4. There are a lot of special-purpose devices in our life.
5. A PC can do everything in our life.
6. Computer consists of the keyboard, the monitor, the mouse and the CPU.
7. You can watch movies, play games on monitor.
8. Nowadays wireless mouse isn't available.
9. The keyboard hasn't many buttons.
10. The optical sensor detects the mouse movement.

Grammar

1. Put the right question to these sentences. (Present Simple)

- It costs fifty dollars.
- It monitors employee activity.
- It is easy to use.
- It is available in three colours.
- It comes with a two-year guarantee.

2. Put the right question to these sentences. (Passive Voice)

- This device is manufactured in India.
- It is designed for competent users.
- It can be used for internal communication.
- It is equipped with a signature recognition software.
- The cover is made of leather.

3. Put the right question to these sentences. (Comparatives and Superlatives)

- The new version is more reliable than the old one.
- It's smaller than a laptop.
- It's not as expensive as a PC.
- It's the cheapest product on the market.

Writing

1. Write the essay to topic «Computer in my life».
2. Write the letter to a friend about computers.

Grammar

1. Open the brackets, put the verbs into the correct tense.

1. I _____ (develop) a new program since I left my last job.
2. I _____ (help) you with this invention!
3. When _____ we _____ (provide) our company with all the necessary hardware?
4. I _____ (finish) installing the program by the time you come to work.
5. Why _____ you _____ (want) to convert this data?
6. The modem _____ (retrieve) the signal for over an hour..
7. I _____ (plug) the sound card before you arrived.
8. I _____ (be) busy. I can't help you.
9. Come here at 9. I hope we _____ (expand) memory by that time.
10. When _____ you _____ (send) the telegram?

2. Put the verb in brackets into the correct tense.

1. All computers _____ (to use) different basic techniques for doing the tasks we give them.
2. Input _____ (to be) the process of entering data into the computer.
3. Computer keyboards _____ (to include) alphabet keys.
4. Once data _____ (to be) in a microcomputer, it _____ (to be) processed by the scanner.
5. Microprocessors _____ (to do) all calculations and manipulations necessary to transform data into meaningful information.
6. Getting processed data out of the computer _____ (to be) the job of a plotter.
7. All microcomputers _____ (to use) disks to store data magnetically.
8. Three types of software _____ (to be) necessary to make the computer capable of performing useful work.
9. There _____ (to be) seven most common types of application software.
10. Storage devices _____ (to hold) data permanently.

3. Open the brackets, put the verbs into the correct tense.

1. They _____ (to write) this computer program by June.
2. A hybrid computer _____ (to combine) some properties of digital and analog computers.
3. Computers _____ (to become) smaller, cheaper and more numerous.
4. Designers _____ (to call) these small computers microcomputers or micros since that time
5. The electronic computer just _____ (to perform) these calculations.
6. When I came into the room, my friend _____ (to compile) a program.
7. The personal computer industry truly _____ (to begin) in 1977.
8. By 1997 about 40 percent of all families in the United States _____ (to own) a personal computer.
9. I'm terribly sorry, I completely _____ (forget) about it.
10. Why _____ we (not go) to the exhibition?

4. Put the verb in brackets into the correct tense.

1. The processor _____ (to coordinate) the activities of the various components of the computer.
2. All computer systems _____ (to contain) both a keyboard and a mouse.
3. The mouse _____ (to have) three buttons which control the cursor movement across the screen.
4. One should necessarily _____ (to edit) all the texts before printing them.
5. Microsoft Word _____ (to be) a perfect word processing program and publishing program.
6. Computers _____ (to create) much work.
7. Computer systems _____ (to do) not always function.
8. People _____ (to begin) to feel like machines.
9. They _____ (to produce) these computers in Japan.
10. The famous Russian scientist M. V. Lomonosov _____ (to compile) a lot of calculating tables.

5. Open the brackets, put the verbs into the correct tense.

1. This software_____ (to contain) information about memory capacity.
2. He_____ (to store) the information in this file in 5 minutes.
3. Mr Smith _____ (to buy) a new modem now.
4. They_____ (to discuss) the amount of new devices all the previous meeting.
5. The developer_____ (to check) the equipment next Friday while the designer _____ (to teach) the employees how to handle with scanners and printers.
6. They ___just_____ (to install) the program.
7. Before Mr. Brown _____ (to leave) for London next Friday, his secretary_____ (to phone) to the hotel to reserve an accommodation for him.
8. I am sure they_____ (receive) that work.
9. The task is too complex, my knowledge _____ (not allow) me to cope with it.
10. Do you know how many users _____ (visit) this cite now?

Vocabulary

1. Match the words and their definitions.

- 1 – browser
- 2 – bug
- 3 – cache
- 4 – cursor
- 5 – driver
- 6 – e-mail
- 7 – firewall
- 8 – font
- 9 – home page
- 10 – login

a) A blinking symbol on the screen that shows where any new text will next be entered.

b) Electronic mail : messages sent from one computer to another over the internet.

c) A special program which enables a computer to work with a particular piece of hardware such as a printer.

d) A program or tool such as Internet Explorer, Mozilla Firefox or Google that enables you to browse or surf the World Wide Web and view internet sites.

e) A defect or fault in a program that prevents it from working correctly. Bugs are caused by mistakes or errors made by those who write the program.

f) The main page or opening page of a website. It usually contains links to other pages.

g) A sort of fast memory used for temporary storage of recently accessed web pages, which enables the browser to display them more quickly on the next visit.

h) Process by which a user enters a name and password to access a computer.

i) A particular kind of lettering (e.g. Arial, Verdana, etc.)

j) Specialized hardware or software designed to prevent unauthorized access into or out of a computer or network.

2. Fill in the blanks with the following words. Use only one word in each space.

The ability to work with a computer is a _____ basic skill today. In primary and secondary schools pupils learn how _____ a computer. Computer helps students to study at their own pace more _____, and helps teachers to do their work more creative. Most students find that using a word _____ is faster and far more convenient, especially when it comes to editing. The most widely used application after the word processor is the _____ spreadsheet. Students also use _____ to organize their own research. Spreadsheet is good for organizing numeric data, database _____ is excellent

for collecting many kinds of data, including numbers, text, graphic _____, and even sound. Once you have collected a large body of data, you can use the software _____ through it, organize it, and pick out specific subsets of _____ data.

Words: to operate, electronic, images, processor, necessary, software, intensively, related, databases, to search.

3. Match the words and definitions.

- 1 – modem
- 2 – portal
- 3 – provider
- 4 – spam
- 5 – virus
- 6 – spyware
- 7 – worm
- 8 – www
- 9 – zip
- 10 – scanner

a) A piece of hardware, or peripheral device, used to scan a document and create a digital copy.

b) A malicious self-replicating program that spreads by inserting copies of itself into other executable code or documents, and whose sole intent is to cause problems on a computer.

c) A self-replicating computer program, similar to a computer virus. It infects additional computers (typically by making use of network connections), often clogging networks and information systems as it spreads.

d) Software that collects information, without your knowledge, about your web-surfing habits and uses it for marketing purposes. Very often contained in free downloads or shareware programs

e) World Wide Web: a hypertext information system consisting of a network of web pages which runs on the internet and can be accessed with a browser.

f) To zip a file is to compress it so that it occupies less storage space and can be transferred quickly over the internet.

g) A device that enables a computer to send and receive information over a telephone line (internet, email, fax).

h) Company that provides access to the internet.

i) A website that acts as a gateway or entry point to the internet (for example, Yahoo).

j) Unwanted, irrelevant or inappropriate e-mail messages, especially commercial advertising. Also referred to as 'junk mail'.

4. Fill in the blanks with the following words. Use only one word in each space.

Another _____ that has steadily grown with _____ use is electronic mail, or E-mail. _____ let one computer user send a _____ to another user on the other side of the building – or the other side of the planet. As long as both users have _____ to a common computer network, they can communicate. Businesses have found that this type of _____ can save large amounts of time and money. One more application for which businesses have found great use is _____ graphics. Whether you are selling an idea or _____ to your boss or to a potential customer, presentation graphics software can help. These _____ give you a great possibility _____ and format charts, graphs and text.

Words: programs , communication , message, application , E-mail, access, to create, presentation, microcomputer, product.

5. Fill in the blanks with the following words. Use only one word in each space.

In science and engineering, computers do _____, draw diagrams, process the results of experiments, keep _____, help with different kinds of chores. Without computers it would be impossible for engineers to perform the great number of calculations needed to solve many _____ technological problems. Computers help in the building of _____. Computers are also

used to develop equipment for _____ the Moon and planets. Computers have been of great help to researchers in the biological, physical and social _____. They also have a major role in the field of information science. In medicine databases, diagnostic _____, monitoring systems serve doctors in their work, in medical and _____ research.

Words: devices, sciences, calculations, laboratory, records, exploring, advanced, spacecraft.

Reading

Read the text:

Many Users Many Uses

Computer is an electronic device that performs calculations and processes information. It can handle vast amounts of facts and figures and solve complicated problems at high speeds. The ability of a computer to do so many tasks makes it useful for a wide variety of purposes. There are some categories of computer application: business, science, engineering, medicine, education, home.

The business segment is one of the largest. Databases, spreadsheets, and word processors help businesses to run more efficiently, make administrative work easier. Creating documents (correspondence, reports and so on) and managing finances are the main tasks in an office.

Another application that has steadily grown with microcomputer use is electronic mail, or E-mail. E-mail lets one computer user send a message to another user on the other side of the building – or the other side of the planet. As long as both users have access to a common computer network, they can communicate. Businesses have found that this type of communication can save large amounts of time and money.

One more application for which businesses have found great use is presentation graphics. Whether you are selling an idea or product to your boss or to a potential customer, presentation graphics software can help. These programs give you a great possibility to create and format charts, graphs and text.

In science and engineering, computers do calculations, draw diagrams, process the results of experiments, keep records, help with different kinds of chores. Without computers it would be impossible for engineers to perform the great number of calculations needed to solve many advanced technological problems. Computers help in the building of spacecraft. Computers are also used to develop equipment for exploring the Moon and planets. Computers have been of great help to researchers in the biological, physical and social sciences. They also have a major role in the field of information science.

In medicine databases, diagnostic devices, monitoring systems serve doctors in their work, in medical and laboratory research.

The ability to work with a computer is a necessary basic skill today. In primary and secondary schools pupils learn how to operate a computer. Computer helps students to study at their own pace more intensively, and helps teachers to do their work more creative. Most students find that using a word processor is faster and far more convenient, especially when it comes to editing. The most widely used application after the word processor is the electronic spreadsheet. Students also use databases to organize their own research. Spreadsheet is good for organizing numeric data, database software is excellent for collecting many kinds of data, including numbers, text, graphic images, and even sound. Once you have collected a large body of data, you can use the software to search through it, organize it, and pick out specific subsets of related data.

People at home use all the same types of software as they do at school or at office. Computers serve as word processors, electronic message centers and personal finance devices. Very often people use personal computers to play games, watch video films, or for education.

Say if the sentences are true or false. Correct the false ones using the information from the text.

1. One of the biggest segments of computer application is business.
2. Presentation graphics software gives you a possibility to send messages to other users.
3. The ability to work with a computer isn't important today.

4. Playing computer games and watching video films are the main tasks in an office.
5. Students often use such applications as word processors and spreadsheets.
6. Computers don't play a great role in science.
7. Businesses find that using E-mail saves time and money.
8. A word processor is good for organizing numeric data.
9. People at home use different types of software than they do at school or at office.
10. Computers help in the building of spacecraft.

Speaking

Read the following dialogues and make your own ones on the same topic

1. Computer tools

A: Hallo, Mike! Where are you going?

M: Hallo, Alan! Haven't seen you for ages. I am going to the computer room.

A: Oh, you, students of the Information Science Department, work much in the computer room.

M: You are right. We must spend much time with the computer to become good specialists. But you, students of the Philological Department, also read much to become good teachers, don't you?

A: I agree with you. But we have a vague idea what the computer is. I'd like to go with you and see how a computer will be operating.

M: O.K. Let's go together. (In the computer room.)

M: Have a seat, please, near this personal computer. First of all, we must switch the disk drive and the system unit on.

A: Oh, I see digits are replacing each other on the screen. What does it mean?

M: It means that the computer is testing its basic units: a keyboard, a screen, and primary memory. We call this process self-testing. A special program is controlling this self-testing now.

A: And now I see the message «NON-SYSTEM DISK OR DISK ERROR». What is it?

M: It means, there is a diskette in the disk drive, but there is no operational system on it. The user must put the necessary diskette in the disk drive, press any key, and repeat.

A: As far as I understand the process of loading is the next step, isn't it?

M: That's it. After self-testing the computer begins to load the operational system from the diskette.

A: And how shall we know when the process of loading is over?

M: There will be special messages on the screen. Some of them are questions to the user. Well, look, now operational system is asking to point out the date and the time.

A: And what must the user do to run a program?

M: The user must put the diskette in the disk drive; then type the name of the program on the keyboard and press the key «ENTER».

A: But why are you typing «DIR» now ?

M: I want to be sure that there is really the program I need on the diskette. Now you see there is a directory: diskette files on the screen. Each file has its name, the length in Kbytes, the date and the time of its creation.

A: So you must find the name of the program, mustn't you?

M: You are quite right. Now you see the necessary program is running.

A: Thank you very much for your computer lesson. I'm sorry, I'm afraid to be late for my English class. So long!

M: Glad to help you. See you.

2. Computers and Their Application

Ann: Hello, Peter! I haven't seen you for ages! Where have you been all this time?

Peter: You know, Ann, I've been very busy this week! We have examined and analyzed the results, and now we are processing the data.

Ann: Do you mean you have taken part in the work?

Peter: Naturally! And you know, I've come to realize that computers have many scientific uses. They are the most suitable and reliable machines for making calculations.

Ann: How clever of you!

Peter: All the great discoveries in science have been the result of accurate measurements and calculations.

Ann: I wonder if scientists have worked out computers serving different purposes.

Peter: But of course! There are computers for various applications. Special-purpose computers, for example, do only one job over and over again. But there are some computers that can do many different jobs. They are called general-purpose computers.

Ann: Oh, how interesting! And what can the general-purpose computers do?

Peter: They answer questions about rockets and planes, bridges and ships long before these things are even built. Computers help our space program, our armed forces, our business and industry.

Ann: Thank you for the interesting information and good-bye!

Peter: Good-bye!

Writing

Themes:

1. Advantages and disadvantages of the laptop.
2. The usage of the computer in our life.

Vocabulary

1. Match the words with their meanings.

- | | |
|----------------------|--|
| 1. Server | A laptop personal computer |
| 2. Notebook software | B Specialized equipment for implementation service |
| 3. Antivirus | C input unit that, analyzing some object |

- | | | |
|---------------------|---|--|
| 4. The scanner | D | program for finding out computer viruses |
| 5. File information | E | device for the conclusion of text or graphic information |
| 6. Desktop | F | named area of data on the carrier of information |
| 7. The printer | G | computer intended for the permanent placing on a table |

2. Fill in the words from the list, then make sentences using the completed phrases.

Browsers, click, content, copyright, design, format, infringement, Internet, layout, World Wide Web

1. I don't like the _____ of that building. The entrance is too small, and there are no windows in the lounge.
2. They cannot simply reproduce that book without his permission. The _____ legally protects it from unauthorized reproduction.
3. When you _____ a document in a word processing program, you change the size, shape and font of the words.
4. Not allowing them to vote is an _____ of their rights.
5. The book which Richard wrote is fascinating. The _____ is both thought-provoking and educational.
6. When I pressed that button, I heard a loud _____. I hope I didn't break the computer.
7. Internet Explorer and Firefox are _____.
8. She attended a school for fashion _____.
9. The Web is an international collection of commercial and educational sites on the _____.
10. The "www" in an Internet address stands for _____.

3. What electronic devices should these people buy?

1. Tyler: 'My computer is outdated and very buggy.'
2. Olivia: My TV is poorly distorts the image.'

3. David: 'I like to listen to music out loud.'
4. Sophia: 'I love to cook, but I have no time for this.'
5. John: 'My sister does not like to wash dishes.'

4. Complete the sentences. Use one word in each gap.

1. _____ is an electronic device that can receive a set of instructions called program and then carry out them. The modern world of high technology could not be possible without computers.

2. The modern _____ of high technology could not be possible without computers.

3. The first _____ ever sent was in one thousand nine hundred and seventy second year between computers in two American universities.

4. Everybody knows that the _____ is a global computer network, which embraces hundreds of millions of users all over the world and helps us to communicate with each other.

5. Magnetic and optical disks or other stores of the digital _____ more often are applied to long-term storage of the information.

5. Translate the sentences into your native language.

1. The main printed circuit board (PCB) found in general purpose microcomputers and other expandable systems.

2. A type of malicious software program ("malware") that, when executed, replicates by reproducing itself (copying its own source code) or infecting other computer programs by modifying them.

3. A small, portable personal computer with a "clamshell" form factor, an alphanumeric keyboard on the lower part of the "clamshell" and a thin LCD or LED computer screen on the upper portion, which is opened up to use the computer.

4. Software that controls the allocation and usage of hardware resources such as memory, CPU time, disk space, and input and output devices.

5. The enclosure that contains the main components of a computer.

6. The transmission of a file from one computer system to another, usually smaller computer system.

7. An expansion card that allows the computer to send graphical information to a video display device such as a monitor, TV, or projector.

8. Random access memory (RAM) that a computer microprocessor can access more quickly than it can access regular RAM.

9. A person who uses computers for work or entertainment or communication or business.

10. An unspaced sequence of characters used to determine that a computer user requesting access to a computer system is really that particular user.

Grammar

1. Use the words in brackets to complete the description.

Example: There is a large window in the room. On the window-sill there are flowers. (beautiful) The flowers are beautiful.

1. There is a small table near the window. On the table there is a computer. (quite new). _____

2. There are twin beds in their bedroom. On the beds there are bedclothes of the same colour. (dark green) _____

3. There is a big vase on the table. Under the vase there is a table-runner. (very beautiful) _____

4. There is a big wardrobe opposite the door. On the wardrobe there are a few hats. (belong to...) _____

5. There are many shelves on the wall. On the shelves there are a lot of house plants. (make the room cosy) _____

6. There is a cupboard by the left wall. Near it there is a fridge. (keeps the provisions fresh) _____

7. There is a bedside cabinet near the bed. There is a reading-lamp on it. (very convenient) _____

8. There are a few chairs around the table. Opposite the table there is a bookcase. (full of books) _____

4. Combine the sentence using Past Participle.

1. Timbers are used for building purposes. Timbers are divided into two groups. They are called softwood and hardwood.
2. Plastics are artificial materials. they are used in construction work for a large number of purposes.
3. Foamed glass is made of fine-ground glass and frothing agent. It is a high-porosity heat insulating material, available in block.
4. Concrete is an artificial stone. It is made by mixing such natural ingredients as cement, sand and gravel or stone what is broken before.
5. Sand is made up of very tiny grain of rock. The rock is found at the seaside.
6. The strongest concrete is called reinforced concrete. It is made by adding steel rods before the mixture sets.
7. Many kinds of plastics are made of chemicals. The chemicals are come from oil.
8. Clay is a natural material/ it is obtained from the ground.
9. Wood is seasoned quickly in special ovens. They are called kilns.
10. Timber is a natural material. It is obtained from trees.

5. Put adjectives in the brackets in the correct form.

1. Burj Dubai in United Arab Emirates built in 2009 is the _____ skyscraper in the world. Its height is 818m. (tall).
2. The Causeway un USA built in 1956 is the _____ bridge in the world over water, measuring at 38,42 km long. (long).
3. Sydney harbour bridge in Australia is the world's _____ bridge. It has 16 lanes of car traffic, 8 lanes in the upper floor and 8 lanes in the lower one. (wide).
4. The world _____ bridge in Donghai Bridge in China with length of 32,5 km. (long).
5. Freedom Square in Kharkiv is the first-_____ one in Europe. Its area is 119,000 m². The world _____ one is Tiananmen Square in China with area 440,000 m². (large).

6. The Seikan Rail Tunnel in Japan is the _____ tunnel in the world at 53.9 km, of which 23.3 km is under the seabed. It is also the _____ one in the world. (long; deep).

7. The Channel Tunnel in UK and France is the second _____ one in the world with the _____ underwater section. But it is the _____ international tunnel in the world and the _____ railway tunnel in Europe. (long).

8. Skara Brae in Scotland built in 3100 BC is the _____ building in UK. (old).

9. The world _____ excavator is built in Germany and has weight 45,500 tons, height 95 meters and length 215 meters. (big).

10. Burj Al Arab Hotel in Dubai is the world's _____ hotel. It is the only 7 star hotel in the world. The cheapest room costs \$1000 per night. (expensive).

Reading

Read the text:

The Pros and Cons of Using the Internet

Advertisements for the Internet promise you a world of information, entertainment, on-line shopping and e-mail services. But, the real world of the Internet may not be as perfect as the advertisement suggest.

Using the Internet offers many advantages. For example, all of the latest information is available to you, in your home, at any hour of the day or night. It is much faster and easier to surf the net in search of information from all over the world than to travel to libraries in dozens of countries. Also, on-line shopping makes it possible to search through catalogues to find exactly what you want at the best price, saving both time and money. By joining a newsgroup or chat group, you can share your hobbies and special interests, and perhaps make friends all over the world. Finally, e-mail is popular because it is faster than sending a letter and cheaper than telephone conversation.

On the other hand, the Internet has several disadvantages. Firstly, with so much information available, finding what you want can take you hours. Multimedia web pages with photographs, music and video are attractive; however they make downloading slow and boring. What is more, there is too much advertising instead of real information. As for Internet friendships, sitting at home in front of a computer making 'chat friends' is not the same as actually meeting people.

In conclusion, the Internet obviously has both good and bad points. Fortunately, the system is improving all the time, and any problems which still exist can be solved. Whether we like it or not, the Internet is here to stay, so we have to make the best possible use of it.

Read the list points about the Internet and mark them T (true) or F (false).

1. ___ Web pages with photographs, music and video make downloading slow and boring.
2. ___ The latest information is available to you at any time, quickly and easily.
3. ___ On-line shopping can save you time and money.
4. ___ With so much information, finding what you want can take hours.
5. ___ You can share your hobbies and special interests with newsgroups and chat groups.
6. ___ There is too much advertising instead or real information.
7. ___ You can make new friends in chat groups.
8. ___ Making 'chat friends' is not the same as actually meeting people.
9. ___ You can send mail fast and cheaply.

Speaking

Read a dialogue between two friends. The theme of their conversation: «The pros and cons of computer». Then make your own one.

- Hi, Bill! How are you? Did you see a program on TV yesterday evening?

- Hi, Tom! I'm fine. No, I didn't. Which program did you see?

- Oh... You miss a lot. There people tell pros and cons of computer.

- Really? And can you tell me a little bit?

- Yes, I can. At first, I tell you about cons of computers.

- OK. I will listen to you very attentively.

- First of all, computer can damage your eyesight. But it's very important in our life.

- Yes, it's horrible. And from now on I won't use the computer as long as I used it before

- Then, when you are surfing the Net, you see different websites with extra information which you don't need.

- I agree, because it's very bad for children. This information can damage their psyche. Tell me about pros of computer.

- Well, with the help of computer you can send mail fast and cheaply.

- I think the same, because sending letters by post is very long.

- Also, when you study somewhere internet can help you, because it's possible to find another information which you need.

- Yes, it's really important. Nowadays people prefer internet and think that it's better than books.

- Besides this, you can make new friends in chat groups and meet people from all over the world.

- Thank you very much, Bill! It was very interesting. I'll see the next program, because I can learn some new about something.

- Not at all. I'll tell you when will be the next.

- Goodbye. Have a nice day!

- Bye.

ADDITIONAL READING

Resouce: <https://www.peertechzpublications.com/articles/TCSIT-5-122.php>

It is a well-recognized fact that Artificial Intelligence (AI) and robotics have been gaining a gigantic collaboration around the globe for several kinds of purposes. The escalating demand and prominence of the robotic have made life extremely easy. However, simultaneously an overly concerned hostility arises for human beings as the robots are taking over all the jobs in the industrial world. Robots are bringing about productivity while at the same time lessening the employment opportunities. Robots have already taken over all the blue-collar jobs. Now robots have started to enter white-collar jobs as well. As a result, jobs in all areas will be at stake. Robots, artificial friends, can perform low paid hard jobs in unsocial hours, generating a tremendous amount of comfort for the world. There is a high possibility that future generations will see robots as teachers and carers as soon as the robots are successfully learning feelings like compassion and complex response sensing. Robots perform jobs with faster speed as studies suggest that one robot functions similarly to 70 full-time human workers. The rise in robotic adoption results in falling into employment opportunities. However, the next generations can only be able to achieve the fundamental advances of the robots after investing in this field for years.

We have done a systematic analysis of various kinds of robots by utilizing the comparison parameters to demonstrate the fundamental objective of the development of the robots. The main objective of our research is to expose the consequences of the robotics on human employment opportunities in all the areas. We have also discussed the future of the human and robot relationship.

Advantages of automation and intelligent machines

- Predominantly in the industries of developed countries (countries with high labor costs), automation and the use of production robots cause significant savings concerning the cost of labor and products. A production robot might thus cost cheaper than a worker in China. Another characteristic is that robots do not fall sick, have children or go on strikes and are not entitled to annual leaves.

- An intelligent machine need not rely on external components and can work unfailingly and continuously 24/7, and it can work in danger zones. As an implication, its accuracy is greater than that of a human, and it cannot be side-tracked either by fatigue or by other external circumstances.

- While making crucial decisions, intelligent systems can be governed by unprejudiced standards so that decisions can be made practically, based on facts and data. Productivity expansions have so far always led to an upgrading of living circumstances for everybody. The same applies to intelligent machines.

- The significant advantage for employees is that the burden of labor-intensive may reduce for them; tedious, dull work can be done via self-ruling frameworks. The same is appropriate for typical back-end activities in the service sector: frameworks can be designed to gather information naturally, transfer data from one system to another, and find resolutions for problems. Once an interface between two systems is set up, manual intervention to enter data is not necessary.

- Apart from supporting functions, intelligent machines can be designed with life-saving capabilities as well, for example, robots used in medical diagnostics and inspection robots. These must be designed with high accuracy to avoid any accidents and to have the best results.

Robots and robotics

Robots: A robot is an intensive, influential machine. Automotive control is used to guide a robot. The main objective of the robots is to assist the world in daily routines. The actions that a robot can perform comprises of picking the objects, moving, and destroying them, and modify them as directed.

Robot operating system: The robot operating system is a unique, comprehensive and opensource operating system that is developed to control the robots. This system functions the same as the computer operating system. Functions of a robot operating system are:

- Management of the hardware components, processes, and memory.
- Management of the data merging, concurrency, and parallelism.

The extensive use of AI and provision of hidden reasoning algorithms.

Robotics: Robotics is a branch of AI. The mechanical construction is the property of the robots, which is used to form or design a particular task. The power and control of machinery are handled by the electrical components

present in the robots. What, when, and how a robot performs a task is controlled by the computer program built in the robot.

History of robots and robotics: Telem manipulators are machines that are controlled remotely and have an arm and a gripper. Humans use a control device to give instructions to telem manipulators. The main objective of the telem manipulators is to provide successful collaboration with the radioactive material. Numerical control provides the facility to control the machine accurately. In 1952 for the first time, numeric control was used by MIT. Numerical control caused the development of the APT (Automated, programmed tools). In 1961 the first industrial robot was developed using these techniques. Those robots were used in industrial jobs such as car construction plants. The desire for autonomous transport systems leads to the development of autonomous robots. Since 1975 the humanoid robots are being developed. MIT-AI-Lab has been developing humanoid robots named ‘Cog’ since 1994. Robots are the best friends of humans in science fiction. However, soon we will see the roles taking the jobs as universal programmable machine slaves.

Ai and robotics: Artificial intelligence is a vast field that is also pushing its way in the domain of healthcare, business and social sector. The concept of AI and robotics is based on an agent called an ‘actor’. An actor is considered a software component, and it has a unique assembly of the hardware structure of the robot. The unique link between actor and physical structure of the robot enables the control of the robot through the actor. The software component uses sensors to read the data. After completing the reading process, the robot decides to take the next action and give directions to its effectors to act physically in the environment. AI-Robotics intersection covers the following concerns:

- Actions that are planned, including the monitoring and the reasons behind the goal.
- Through open environments, we have modelling, understanding, and picking.
- Developing interaction with humans as well as other robots.
- Learning models that are required by the functions.

And combining those functions to develop a flexible and durable architecture.

Analysis of different robots: Gradually different types of robots have been invented. In Table I, we have provided a comparative study of various types of robots.

Criterion/ Robot Types	Swarm robotics	Nanorobotics	ASIMO robotics	TOPIO robotics	Autonomous robotics
Population Size	High range of Variation	High range of Variation	Maybe a single robot or Variation in a great range	Maybe a single robot or Variation in a great range	Maybe a single robot or Variation or fixed in a great range
Control	Decentralized and autonomous	Autonomous	Autonomous	Computer control through the wrist of the robot	Autonomous
Homogeneity	Homogeneous	Homogeneous	Homogeneous or heterogeneous	Homogeneous	Homogeneous or heterogeneous
Flexibility	High	High	High	High	High
Scalability	High	High	High	High	High
Environment	Unknown	Known	Known	Known	Known or unknown
Motion	Yes	Yes	Yes	Yes	Yes

Human-robot interaction: HRI is human communication reliant. In 1941 the author Isaac Asimov three significant laws of robotics: A robot should not attempt to injure a human being. The human gave any order, the robot must obey, except those orders which may create conflict with the first stated law. It is the responsibility of the robot to protect its existence, but that protection should not have a clash with the first two laws. These laws determine the idea of safe interaction. The growth of human-robot interaction can lead to human injury. In the modern world, this issue can be resolved by invalidating the sharing of workspace between human and robot workers at any time.

According to a prediction, in 2025, the robots will be hired for around 3.5 million jobs where there will be no good office jobs for people. According to the report of a foundation, in 2025, there will be no need for nursing carers for older people because robots will perform the caring duty. Japan will be able to save a budget of 2.1 trillion yen (\$21 billion) that must be spent on insurance payments for elders. In 2030, Japan will be able to save 16 percent, depending on the number of jobs occupied by the robots. The law of human-human interaction also applies to human-robot interaction. The law states that companions with the same traits tend to communicate. Drawbacks of robots as carers include the feeling of isolation due to the lack of human attention, love, empathy, and care. Having no emotional interaction with the carer is odd. The goal of the HRI research is to achieve more effective and natural human-robot interaction to provide necessary guidance for robots.

The reason to choose robots for robot-human interaction instead of human-human interaction is that we can decide the level of association with a robot according to the requirement. Robots cannot perform a task unless we direct them to do so. These characteristics prove the robot as the right partner.

If the decoding of intentions behind the instructions from human teachers is possible, then it is straightforward for us to teach a robot that how to 'understand' a natural language, and after that, it can build enough knowledge using that language. This leads us to a stage where we can get a robot that is smart enough as those babies who learn much better practically when they are taught. It is highly required to effectively build human-robot interaction so robots can respond to humans more effectively and acceptably. According to HRI, the main goal is to achieve human satisfaction, comfort and confidence in their surroundings. Everyday human-robot communication, using emotions for the recognition, learning from reactions, and delivering effective responses, accordingly, are the main challenges.

Future of the jobs with the existence of robotics

Respondents were asked to share their perspectives and insights on their greatest fears for their profession to 2025. The respondents stated that there would be an increment in unemployment, and people will have to involve in more and more technology learning. World Economic Forum (WEF) provided a new report that has arranged its yearly meeting in Davis' Swiss ski resort,

factories and hospitals say that in the next 5 years the robots will take over 5.1 million office jobs. According to a survey conducted by young workers in the western countries, they considered that they could not perform their jobs appropriately by only relying on their education as their qualifications do not prepare them to attain it. The job skills gap between humans and robots is primarily observed in Europe. According to a survey, around 80% of people stated that it is highly needed to learn advanced technical skills, other than the school syllabus, to keep pace with the advancements in robotics.

Fourth industrial revolution millions of jobs at risk: According to a report on the future of jobs, in each industry, there will be an exceedingly high impact of robotics, and jobs will be replaced. At the same time, the demand for skilled workers will be on a high peak, which may include specialist sales representatives and data analysts. According to the report, this robotic revolution will put the jobs of the women at higher risk as the prominent roles performed by the women are low growth, sales jobs, or administrative roles. The industrial sector has already been revolutionized by automation and robotization over the last 40 years, which has raised productivity but also caused unemployment. In 1980, the manufacturing jobs reached their peak in the United States, also with low wages in the middle class. At the time, the current counting of industrial robots is 20,000 in the country, and this counting is going to increase day by day. In the United States, in the coming 25 years, 10% of the jobs that are related to driving will be finished because the trend of driverless cars will be on a high peak. According to a computer science professor at Cornell University named Bart Selma, in the next 2 to 3 years, our society will see autonomous robots.

At the McKinsey Global Institute, a partner Michael Chui, during a board on 'Is Any Job Truly Safe?' stated that robots provide high-quality work with low error rates. Still, it can diminish the number of labours. More than 700 speakers said that low-wage, low-skill jobs had been done away due to the technology revolution. In some mines of Australia, robot operating trucks are cited; employees are replaced with corporate legal action software, which has the advancements to shift thousands of documents before trials from one place to another; and on Fence Street, the computerization of essential jobs. Goldman Sachs Group, who is the organizer of a financial services analytics company,

chief executive of Kensho, Daniel Nadler, stated that all the jobs related to moving data spreadsheets would be automated in the next years. As bound trading is giving less profit to the businesses; hence, there is a considerable strain from the investors to increase the gain. Hence banks are increasingly moving towards automation to increase revenue.

Changing landscape of employment: It is essential to understand what will be the scenario where jobs are automated, and machines become smarter. Despite popular belief, mass unemployment will not be a resultant; however, a massive makeover of jobs seems likely. Key trends will be as follows:

Technology reshapes every job: A broad scope of white-collar and knowledge-worker jobs such as HR staff, legal staff, and even salespeople and marketers are defenseless against disturbance by robots and AI. A more prominent chance to upgrade efficiency may lie in re-examining and rethinking work around tackling business issues, providing new services, and achieving new levels of productivity and worker satisfaction and passion.

Rise of more social jobs: Research recommends that in excess of 30 percent of lucrative new employments will be social and ‘basically human’ in nature. In this view, employers should become much more focused on exploring opportunities to create work that exploits particularly human capacities, for example, interest, creative ability, imagination, and social and passionate knowledge.

Alternative work arrangements: Innovation is changing more than the way jobs are done – it is changing the way organizations discover work. Numerous worldwide organizations, as of now, effectively utilize crowdsourcing platforms to source new thoughts, take care of issues, and plan complex frameworks.

Lifelong learning and skill development: As rapid technological and marketplace changes contract the valuable life expectancy of skills, specialists should move from gaining particular aptitudes and certifications to seeking after persevering and necessary abilities for long-lasting learning.

Conclusion

Self-ruling robots are confronting an assortment of open situations, and differing qualities of assignments are incapable of depending on the primary leadership abilities of a human designer. There is a need for showing the

complexity of thinking capacities required to comprehend their surroundings and present surroundings and to perform deliberately. In the paper, we have alluded to such thinking abilities as pondering capacities, firmly consistent inside a mind-boggling design. We have introduced an outline of the best in class for some of them. With the end goal of this review, we have suggested that it was illuminating to recognize these capacities as for their primary part and computational prerequisites: the objective thinking, arranging, acting, and observing capacities. Be that as it may, let us demand once more: the fringe between them is not fresh. The objective for their execution inside operational engineering needs to consider various prerequisites, specifically a chain of command of shut circles, from the most element inward circle, nearest to the tactile engine flags and summons, to the most 'offline' outer circle.

Emotion Recognition for Human-Robot Interaction: Recent Advances and Future Perspectives

Resouce: <https://www.frontiersin.org/articles/10.3389/frobt.2020.532279/full>

A fascinating challenge in the field of human–robot interaction is the possibility to endow robots with emotional intelligence in order to make the interaction more intuitive, genuine, and natural. To achieve this, a critical point is the capability of the robot to infer and interpret human emotions. Emotion recognition has been widely explored in the broader fields of human–machine interaction and affective computing. Here, we report recent advances in emotion recognition, with particular regard to the human–robot interaction context. Our aim is to review the state of the art of currently adopted emotional models, interaction modalities, and classification strategies and offer our point of view on future developments and critical issues. We focus on facial expressions, body poses and kinematics, voice, brain activity, and peripheral physiological responses, also providing a list of available datasets containing data from these modalities.

1. Introduction

Emotions are fundamental aspects of the human being and affect decisions and actions. They play an important role in communication, and emotional intelligence, i.e., the ability to understand, use, and manage emotions

crucial for successful interactions. Affective computing aims to endow machines with emotional intelligence for improving natural human-machine interaction (HMI). In the context of human-robot interaction (HRI), it is hoped that robots can be endowed with human-like capabilities of observation, interpretation, and emotion expression. Emotions have been considered from three main points of view as follows:

- **Formalization of the robots own emotional state:** the inclusion of emotional traits into agents and robots can improve their effectiveness and adaptiveness and enhance their believability. Therefore, the design of robots in the last years has focused on modeling emotions by defining neurocomputational models, formalizing them in existing cognitive architectures, adapting known cognitive models, or defining specialized affective architectures.

- **Emotional expression of robots:** in complex interaction scenarios, such as assistive, educational, and social robotics, the ability of robots to exhibit recognizable emotional expressions strongly impacts the resulting social interaction. Several studies focused on exploring which modalities (e.g., face expression, body posture, movement, voice) can convey emotional information from robots to humans and how people perceive and recognize emotional states.

- **Ability of robots to infer the human emotional state:** robots able to infer and interpret human emotions would be more effective in interacting with people. Recent works aim to design algorithms for classifying emotional states from different input modalities, such as facial expression, body language, voice, and physiological signals.

In the following, we focus on the third aspect, reporting recent advances in emotion recognition (ER), in particular in the HRI context. ER is a challenging task, in particular when performed in actual HRI, where the scenario could highly differ from the controlled environment in which most of recognition experiments are usually performed. Moreover, the presence itself of the robot represents a bias, since the robot presence, embodiment, and behavior could affect empathy, elicit emotions, and impact experience. For these reasons, we limit our study to articles that perform ER in actual HRI with physical robots. Our aim is to summarize the state of the art and existing resources for the

design of emotion-aware robots, discuss the characteristics that are desirable in HRI, and offer a perspective about future developments.

Literature search has been carried out by querying Google Scholar, Scopus, and WebOfScience databases with basic keywords from HRI and ER domains, and limiting the search to the last years (≥ 2015). Submitted queries were as follows:

- **Google Scholar:** allintitle: “human–robot interaction” | “human robot interaction” | hri emotion|affective, resulting in 80 documents.

- **Scopus:** TITLE ((“human–robot interaction” OR “human robot interaction” OR hri) AND (emotion* OR affective)) OR KEY ((“human–robot interaction” OR “human robot interaction” OR hri) AND (emotion* OR affective)), resulting in 629 documents.

- **WebOfScience:** TI=((“human robot interaction” OR “human–robot interaction” or hri) AND (emotion* or affective)) or AK=((“human robot interaction” or “human–robot interaction” OR hri) AND (emotion* or affective)), resulting in 201 documents.

By using a simple script based on the edit distance between articles titles, we looked for repeated items between search engines results. Note that 425 papers were only on Scopus, 22 on Google Scholar, 11 on WebOfScience, and 38 documents were returned by all the search engines. Between the remaining articles, 150 were both on Scopus and WebOfScience, 16 on Scopus and Google Scholar, and 1 on WebOfScience and Google Scholar. We merged the results in a single list of 664 items. Since we used loose selection queries, resulting articles were highly heterogeneous and most of them were out of the scope of our review. Therefore, we subsequently selected published articles that addressed ER in HRI, reporting significant results with respect to the recent literature, and that (a) performed emotion recognition in an actual HRI (i.e., where at least a physical robot and a subject were included in the testing phase), reporting results; (b) were focused on modalities that could be acquired, during HRI, by using both robot's embedded sensors or external devices: facial expression, body pose and kinematics, voice, brain activity, and peripheral physiological responses; and (c) relied on either discrete or dimensional models of emotions (see section 2.1). This phase allowed to select 14 articles. During the process, however, we also looked at the references of the selected paper in

order to find other works that fit our inclusion criteria. In this way, 3 articles were added to this review. Finally, we organized the resulting articles by considering modalities and emotional models.

2. State of the Art

2.1. Emotional Models

A key concept in ER is the model used to represent emotions, since it affects the formalization of the problem and the definition and separation of classes. Several models have been proposed for describing emotions, as reported in [Table 1](#). The main distinction is between categorical models, in which emotions consist of discrete entities associated with labels, and dimensional models, in which emotions are defined by continuous values of their describing features, usually represented on axes.

It is hard to say which model is better for representing emotions, the debate is still open and it is strictly related to the nature of emotions, with a lack of consensus. Some scholars claim that emotions are discrete natural kinds associated with categorically distinct patterns of activation at the level of autonomic nervous system. Others point out intra-emotion differences and the overlap of different emotions with respect to observed behavior and autonomous activity. Since the purpose of this work is not to support one or the other thesis, we step back from this discussion and focus on the usability of the models. From the point of view of the recognition process, the possibility to identify distinct emotions is, ideally, the simplest method. Unfortunately, as the number of emotions considered increases, it becomes more difficult to distinguish between classes. On the other hand, despite the usefulness of obtaining information about features of emotions (e.g., valence and arousal), a small number of dimensions could lead to an over-simplification and to an “overlap” of different emotions that share similar values of features. For this reason, the choice of informative and possibly uncorrelated dimensions is critical. Datasets are often annotated by using both categorical and dimensional models, but it could be observed that those employing discrete models do not ever use the same labels, that is annotated emotions differ both in number and names. Conversely, several dimensional annotated datasets share a common valence-arousal (VA) representation, which allows to compare and merge data from

different datasets, in the worst case by ignoring additional axes. When annotating a dataset, a good practice is to provide at least the VA labels.

Table A1 in Supplementary Material reports a non-comprehensive list of datasets that can be used to train and test ER approaches.

2.2. Facial Expressions

A natural way to observe emotions is the analysis of facial expressions. Conventional facial emotion recognition (FER) systems aim to detect the face region in images and to compute geometric and appearance features, which are used to train machine learning (ML) algorithms. Geometric features are obtained by identifying facial landmarks and by computing their reciprocal positions and action units (AUs), while appearance-based features are based on texture information.

In recent years, deep learning (DL) approaches have emerged. DL aims to develop end-to-end systems to reduce the dependency from hand-crafted features, pre-processing, and feature extraction techniques. Notably, convolutional neural networks (CNNs) have been proven to be particularly efficient in this task.

When dealing with video-clips, also the temporal components of data can be exploited. In traditional FER, this is usually accomplished by including in the features vector information about landmarks displacement between frames. In DL approaches, temporal information is handled by means of specific architectures and layers, such as recurrent neural network (RNN) and long-short term memory (LSTM).

In the context of HRI, FER has been performed through conventional and DL approaches.

2.2.1. Discrete Models

An emotion classification approach, based on simple geometrical features, was proposed. Given the position of 68 facial landmarks, their Euclidean distances and the angles of 91 triangles formed by landmarks were considered. A probabilistic ensemble of classifiers, namely dynamic Bayesian mixture model (DBMM), was employed using linear regression (LR), support vector machine (SVM), and an random forest (RF), combined in a probabilistic weighting strategy. The proposed approach was tested both on Karolinska Directed Emotional Faces (KDEF) (Lundqvist et al., 1998) and during HRI for

recognizing 7 discrete emotions. In particular, for HRI test, the humanoid robot NAO was programmed either to react to the recognized emotion. The overall accuracy on the KDEF dataset was 85%, while in actual HRI it was 80.6%. It is to note that the test performed on KDEF was limited to images of frontal or $\pm 45^\circ$ orientation of the faces.

Other authors proposed a method for real-time dynamic emotion recognition according to facial expression and emotional intention understanding. In particular, emotion recognition was performed by using a dynamic model of AUs (Candide3-based dynamic feature point matching) and an algorithm implementing fuzzy rules for each of the 7 basic emotions considered. Experiments were conducted on 30 volunteers experiencing the scenario of drinking at bar. One of the 2 employed mobile robot was used for emotion recognition, achieving 80.48% of accuracy.

Candide3-based features were also adopted. Here, the authors proposed an adaptive feature selection strategy based on the plus-L minus-R selection (LRS) algorithm in order to reduce the model dimensionality. Classification was performed with a set of k-nearest neighbors (kNN) classifiers, integrated into AdaBoost with direct optimization framework. The proposed approach was tested both on the JAFFE dataset ([Lyons et al., 1998](#)) and on data acquired by a mobile robot, equipped with a Kinect. In the latter experiment, the proposed method achieved an average accuracy of 81.42% in the classification of 7 discrete emotions.

FER was performed by combining local binary pattern (LBP) and 2D Gabor wavelet transform for feature extraction and by training an extreme learning machine (ELM) for the classification of basic emotion. Experiments were conducted both on public datasets, and during actual HRI as part of a multimodal system setup. In the latter case, the method was able to recognize between 7 emotions with an overall accuracy of 81.9%.

Histogram of oriented gradients (HOG) and LBP were used as features descriptors, where a SVM was trained to classify 7 discrete emotions. The system was initially fed with images from extended Cohn-Kanade (CK+) dataset, but was fine-tuned, by adding batches of different sizes of local images (i.e., facial images of participants acquired during the test). Classification of data acquired during the interaction with the robot NAO achieved 87.7% of accuracy.

Reported results suggest that FER systems designed for HRI can be developed by using several features and decision strategies. However, differences between HMI and HRI arise. In HMI scenarios, FER is in general easier: the position of the face with respect to the camera is more constrained, the user is close to the camera and the environment conditions do not change abruptly. Due to these differences, it is preferable to train FER system on data in-the-wild or during real interaction with robots. Moreover, it could be useful to endow robots with the capability of recognizing emotions not just from facial information, but also from contextual and environmental data (Lee et al., 2019). Future developments of FER will probably depend also on emerging technologies: in the last decades, there was a rapid development of relatively cheap depth cameras (RGB-D sensors), and thermal cameras. The work by Corneanu et al. (2016) offers a comprehensive taxonomy of FER approaches based on RGB, 3D, and thermal sensors. For example, 3D information can improve face detection, landmarks localization, and AUs computation.

2.3. Thermal Facial Images

Changes in the affective state produce the redistribution of the blood in the vessels, due to vasodilatation/vasoconstriction and emotional sweating phenomena. Infra-red thermal cameras can detect these changes, since they cause variations in skin temperature (Ioannou et al., 2014). Therefore, thermal images could be used to perform ER (Liu and Wang, 2011; Wang et al., 2014). Usually, this is done by considering temperature variations of specific regions of interest (ROIs), e.g., tip of the nose, forehead, orbicularis oculi, and cheeks.

2.3.1. Discrete Models

In Boccanfuso et al. (2016), 10 subjects played a trivia game with a MyKeepon robot behaving to induce happiness and anger and watched emotional video clips selected to elicit the same emotions. RGB and thermal facial images were acquired, together with galvanic skin response (GSR) signal. In particular, the thermal trends of 5 ROIs were analyzed by combining principal component analysis (PCA) and logistic regression, achieving a prediction success of 100%.

In Goulart et al. (2019b), a system for the classification of 5 emotions during the interaction between children and a robot was proposed. A mobile robot (N-MARIA) was equipped RGB and thermal camera that were used to

locate and acquire thermal information of 11 ROIs, respectively. Statistical features were computed for each ROI and multiple combinations of feature reduction techniques and classification algorithms were tested over a database of 28 developing children ([Goulart et al., 2019a](#)). A PCA+linear discriminant analysis (LDA) system, trained and tested on the database (accuracy 85%), was used to infer the emotional responses of children during the interaction with N-MARIA, with results consistent with self reported emotions.

Performing ER from thermal images in actual HRI is still a challenge due to the constraints (other than those that affect simple FER) that are not adaptable to all real-life scenarios, first of all the necessity to maintain a stable environmental temperature. However, recent results show that thermal images have the potential to facilitate HRI ([Filippini et al., 2020](#)).

2.4. Body Pose and Kinematics

As facial expressions, body posture, movements, and gestures are natural and intuitive ways to infer the affective state of a person. Emotional body gesture recognition (EBGR) has been widely explored ([Noroozi et al., 2018](#)). In order to take advantage of information conveyed by static or dynamic cues, an EBGR system has to model the body position from input signals, usually RGB data, depth maps, or their combination. The first step of the canonical recognition pipeline is the detection of human bodies: literature offers several approaches for addressing the problem ([Ioffe and Forsyth, 2001](#); [Viola and Jones, 2001](#); [Viola et al., 2005](#); [Wang and Lien, 2007](#); [Nguyen et al., 2016](#)). Then, the pose of the body has to be estimated, by fitting an a priori defined model, typically a skeleton, over the body region. This task could be performed either by solving an inverse kinematic problem ([Barron and Kakadiaris, 2000](#)) or by using DL, if a large amount of skeletonized data are available ([Toshev and Szegedy, 2014](#)). Features could include absolute or reciprocal positions and orientations of limbs, as well as movement information such as speed or acceleration ([Glowinski et al., 2011](#); [Saha et al., 2014](#)). Classification can be performed either by traditional ML or deep learning ([Savva et al., 2012](#); [Saha et al., 2014](#)).

2.4.1. Discrete Models

An interesting approach was proposed in [Elfaramawy et al. \(2017\)](#), where neural network architecture was designed for classifying 6 emotions from body

motion patterns. In particular, the classification was performed by grow when required (GWR) networks, self-organizing architectures able to grow nodes whenever the network does not sufficiently match the input. Two GWR network learned samples of pose and motion and, subsequently, a recurrent variant of GWR, namely gamma-GWR, to take in account temporal context. The dataset, that included 19 subjects, was collected by extending a NAO robot with a depth camera (Asus Xtion) and using a second NAO located on the side to allow acquisition from two points of view. Subjects performed body motions related to the emotions, elicited by the description of inspiring scenarios. Pose features (positions of joints) and motion features (the difference in pose features between consecutive frames) were considered. The system achieved an overall accuracy of 88.8%.

2.4.2. Dimensional Models

In Sun et al. (2019), the authors proposed the local joint transformations for describing body poses, and a two-layered LSTM for estimating the emotional intensity of discrete emotions. The authors tested the system over the Emotional Body Motion Database (Volkova et al., 2014) by considering the intensity as the percentage of correctly perceived segments for each scenario. Pearson Correlation Coefficient (PCC) between the ground truth and the estimated intensity was 0.81. In real HRI experiments with a Pepper robot, the system enabled the robot to sense subjects' emotional intensities effectively.

Summarizing these results, we can say that body poses and movements are excellent to convey emotional cues and that EBGR systems can be successfully employed in HRI scenarios. Moreover, the fact that FER and EBGR rely on the same sensors (RGB, depth cameras) would allow to take advantages of both modalities.

2.5. Brain Activity

Inferring the emotional state brain activity represents a challenging and fascinating possibility, since having access to the cerebral activity would allow to avoid any filter, voluntary or not, that could interfere with the ER (Kappas, 2010). Several measurement systems could be used for acquiring brain activity. Among them, electroencephalography (EEG) is characterized by high temporal resolution, is portable, easy to use, and not expensive. Moreover, it has proven to be suitable for brain monitoring also in HMI applications (Lahane et al.,

2019). Consumer-grade devices, although not accurate enough for neuroscience research and critical control tasks, have been reported to be a feasible choice for applications such as affective computing (Duvinage et al., 2013; Nijboer et al., 2015; Maskeliunas et al., 2016).

ER by EEG has been widely explored in the literature (Alarcao and Fonseca, 2017; Spezialetti et al., 2018). Most commonly used features can be roughly classified by the domain from which they are extracted (time, frequency, time–frequency). Time domain features include statistical values, Hjorth parameters, fractal dimension (FD), and high order crossing (HOC) (Jenke et al., 2014). Frequency analyses in EEG are very common, also because it is known the association between frequency bands of EEG signal and specific mental tasks. The most intuitive and used frequency feature is band power, but other measures, such as high order spectra (HOS) have been also employed (Hosseini et al., 2010). Time–frequency analysis aims to observe the frequency content of the signal, without losing the information about its the temporal evolution. Among others, wavelet transform (WT) has demonstrated to be particularly suited for analyzing non-stationary signals such as EEG (Akin, 2002). Previously listed features are generally computed in a channel wise manner, but also the topography of EEG signals can be taken into account. Since frontal EEG asymmetry has been proved to be involved in emotional activity (Palmiero and Piccardi, 2017), asymmetry indices have been often employed in emotion recognition.

Some interesting works in traditional literature (Ansari-Asl et al., 2007; Petrantonakis and Hadjileontiadis, 2009; Valenzi et al., 2014) were devoted to test which classification approaches, features, and channel configurations are more suited for EEG-based ER. Results from these studies suggest two significant points. First, the emotional state of subjects can be inferred with quite good accuracy by EEG. Second, using a reduced set of channels and commercial-grade devices still allows to preserve an adequate level of accuracy. The latter point is critical, since in most of the HRI scenarios, the EEG equipment should be worn continuously for long periods and while moving. Light, easy-to-mount devices would be preferable to research-grade hardware. Until 2017 (Al-Nafjan et al., 2017), the most adopted classification approach was SVM, often in conjunction with power spectral density (PSD)-

based features. However, deep learning approaches are standing out also in this domain, showing the potential to outperform traditional ML techniques ([Zheng and Lu, 2015](#); [Li et al., 2016](#); [Wang et al., 2019](#)). However, to the best of our knowledge, few works have addressed EEG ER in real HRI scenarios.

2.5.1. Dimensional Models

In [Shao et al. \(2019\)](#), the authors employed the Softbank Pepper robot as an autonomous exercise facilitator to encourage the user during the physical activity that can autonomously adapt its emotional behaviors on the basis of user affect. In particular, valence detection was performed by analyzing EEG from a commercial-grade device. Selected features were PSD and frontal asymmetry. Among 6 classifiers, a neural network (NN) achieved the highest accuracy over a dataset from 10 subjects obtained by inducing emotions with pictures and videos. When employed in a real HRI scenario, the robot was able to correctly recognize the valence (5 levels) for 14 of the 15 subjects.

In [Shao et al. \(2020\)](#), the authors proposed a novel paradigm for eliciting emotions by directly employing non-verbal communication of the robot (Pepper), in order to train a detection model with data from actual HRI. The elicitation methodology was based both on music and body movements of the robot and aimed to elicit two types of affects: positive valence and high arousal, and negative valence and low arousal. EEG was acquired by a 4-channel headset in order to extract PSD and frontal asymmetry features and feed an NN and an SVM. The affect detection approach was tested on 14 subjects for valence and 12 for arousal, obtaining an overall accuracy of 71.9 and 70.1% (valence), and 70.6 and 69.5% (arousal) using NN and SVM, respectively.

2.6. Voice

Everyday experiences tell us that the voice, as well as facial expressions, is an informative channel about our interlocutor emotions. We have a natural ability to infer the emotional state underlying the semantic content of what the speaker is saying. Changes in emotional states correspond to variations of organs' features, such as larynx position and vocal fold tension, thus in variations of the voice ([Johnstone, 2001](#)). In HRI, automatic acoustic emotion recognition (AER) has to be performed in order to allow robots to perceive human vocal affect. Usually, AER does not examine speech and words in the semantic sense, instead it analyzes variation with respect to the neutral speak of

prosody (e.g., pitch, energy, and formants information), voice quality (e.g., voice level and temporal structures), and spectral (e.g., cepstral-based coefficients) features. Features can be extracted either locally, segmenting the signal in frames, or globally, considering the whole utterance. In traditional ML approaches, feature extraction is followed by classification, performed mostly by hidden Markov model (HMM), Gaussian mixture model (GMM), and SVM ([El Ayadi et al., 2011](#); [Gangamohan et al., 2016](#)). Also in the AER field, deep learning approaches have rapidly emerged, providing end-to-end mechanisms in contrast with those based on hand-crafted features and demonstrating that they can perform well-compared with traditional techniques ([Khalil et al., 2019](#)). Employed models include deep Boltzmann machine (DBM) ([Poon-Feng et al., 2014](#)), RNN ([Lee and Tashev, 2015](#)), deep belief network (DBN) ([Wen et al., 2017](#)), and CNN ([Zheng et al., 2015](#)).

2.6.1. Discrete Models

In [Chen et al. \(2020\)](#), two-layer fuzzy multiple random forest (TLFMRF) was proposed for speech emotion recognition. Statistic values of 32 features (16 basic features and their derivative) were extracted from speech samples. Then, clustering by fuzzy C-means (FCM) was adopted to divide the feature data into different subclasses to address differences in identification information such as gender and age. In TLFMRF, a cascade of RF was employed for improving the classification between emotions that are difficult to distinguish. The approach was tested in the classification of six basic emotions from short utterances, spoken by 5 participants in front of a mobile robot. Average accuracy was 80.73%.

RECOMMENDED INTERNET RESOURCES

<https://see.stanford.edu/>

<http://ocw.mit.edu/courses/#electrical-engineering-and-computer-science>

<https://github.com/>

<http://www.w3schools.com/>

<https://www.codecademy.com/learn>

<http://ai-4-all.org/>

http://www.blackgirlsgcode.com/?fbclid=IwAR399DSWExDIW1olgLOBimxaYefdS2xCQ_DH9nfmsU7J9gYVqfqZ9ywNS1I

<https://www.code.org/>

<https://www.codehs.com/>

<http://www.air.org/project/cs-all-teachers>

<http://www.csteachers.org/>

<http://www.exploringcs.org/>

<https://www.khanacademy.org/>

<https://www.pltw.org/our-programs/pltw-computer-science>

<https://www.raspberrypi.org/>

<http://www.computer.org/>

<http://www.rasmussen.edu/degrees/technology/blog/careers-in-computer-science-face-the-facts/>

<http://www.cs.hmc.edu/~fleck/computer-science/jobs.html>

<http://dobrev.com/AI/definition.html>

<http://philosophy.uwaterloo.ca/MindDict/>

<https://journals.cambridge.org/action/displayAbstract?fromPage=online&aid=6573580>

<http://www.cacr.math.uwaterloo.ca/hac/>

<https://www.cert.org/>

<http://www.faqs.org/faqs/cryptography-faq/>

<http://www.osvdb.org/>

<http://pages.di.unipi.it/marino/pythonads/index.html>

<http://www.codango.com/>

<http://www.findwhitepapers.com/>

<http://www.techtutorials.net/>

ЗМІСТ

Вступ	3
Unit 1	4
Unit 2	37
Unit 3	68
Unit 4	108
ADDITIONAL READING	139
RECOMMENDED INTERNET RESOURCES	158

Навчальне видання

НЕТЕЦЬКА Тетяна Миколаївна
НЕУСТРОЄВА Гелена Олегівна
САЛІОНОВИЧ Людмила Миколаївна
ТОМІЛІН Олександр Михайлович

ЛЕКСИКО-ГРАМАТИЧНИЙ ПРАКТИКУМ З АНГЛІЙСЬКОЇ МОВИ
ДЛЯ СТУДЕНТІВ 3 – 4 КУРСІВ КОМП'ЮТЕРНИХ СПЕЦІАЛЬНОСТЕЙ
ЗАОЧНОЇ ФОРМИ НАВЧАННЯ

COMPUTER VOCABULARY AND GRAMMAR IN USE:
EXTRAMURAL STUDENTS PRACTICE BOOK

Навчальний посібник

Англійською та українською мовами

Відповідальний за випуск *проф. О.І. Горошко*

Роботу до видання рекомендувала *проф Д.В. Райко*

В авторській редакції

План 2021 р., поз. 184

Підп. до друку 05.07.2021 р.

Гарнітура Times New Roman. Обсяг 5,5.

Видавець Видавничий центр НТУ «ХП».

Свідоцтво про державну реєстрацію ДК № 5478 від 21.08.2017 р.

61002, Харків, вул. Кирпичова, 2

Самостійне електронне видання