

МИНИСТЕРСТВО ОБРАЗОВАНИЯ РЕСПУБЛИКИ БЕЛАРУСЬ

**УЧРЕЖДЕНИЕ ОБРАЗОВАНИЯ
<<БРЕСТСКИЙ ГОСУДАРСТВЕННЫЙ ТЕХНИЧЕСКИЙ УНИВЕРСИТЕТ>>**

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ENGLISH 4IT

**Пособие по развитию основных видов речевой
деятельности на английском языке
для студентов специальностей ФЭИС дневной и
вечерней форм обучения**

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Данное пособие составлено в соответствии с требованиями учебной программы «Иностранный язык / английский» для студентов указанных специальностей дневной и вечерней форм обучения.

Целью данного пособия является изучение профессиональной лексики, повторение и систематизация грамматического минимума, формирование навыков и умений чтения англоязычной документации по компьютерным программам и другой оригинальной литературы по специальности, совершенствование навыков перевода, а также развитие профессиональной устной речи в пределах проработанной тематики. Текстовый материал заимствован из зарубежных источников, его тематика определена программой подготовки специалистов технического профиля.

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Unit 1

Grammar: Simple Tenses (Active)

Oral Topic: Programming Languages

Lexical and Grammar Exercises

1. Read the following words. Translate the sentences into Russian. Learn the words by heart.

1) **low-level language** [ləʊ 'lev(ə)l 'læŋgwɪdʒ] – *язык низкого уровня*

Low-level languages are closer to the hardware than high-level programming languages which are closer to human languages.

2) **machine language** [mə'ʃi:n 'læŋgwɪdʒ] – *машинный язык*

Machine code or machine language is a set of instructions executed directly by a computer's central processing unit. To make it easier to write programs in machine language, most programmers use a special program called an assembler.

3) **assembly language** [ə'sembli 'læŋgwɪdʒ] – *язык ассемблера*

Each assembly language is specific to a particular computer architecture. Assembly language is translated into machine code by a utility program referred to as an assembler.

4) **high-level language** [haɪ 'lev(ə)l 'læŋgwɪdʒ] – *язык высокого уровня*

There are a large number of high-level languages; BASIC, COBOL, FORTRAN, and C are examples. The first high-level language for business data processing was called FLOW-MATIC.

5) **mathematical notation** [ˌmæθ(ə)'mæɪtɪk(ə)l nəu'teɪʃ(ə)n] –

1) *математическое обозначение* 2) *система математических обозначений*
Mathematical notation is a system of symbolic representations of mathematical objects and ideas. High-level languages use easily remembered commands, such as PRINT, OPEN, GOTO, and INCLUDE, and mathematical notation to represent machine-language instructions.

6) **procedural language** [prə'si:ɔʒ(ə)r(ə)l 'læŋgwɪdʒ] – *процедурный (императивный) язык*

A procedural language relies on well-organized procedures, functions or sub-routines in a program's architecture by specifying all the steps that the computer must take to reach a desired output.

7) **intercept** [ˌɪntə'sept] – 1) *служить помехой, препятствием;*
2) *перехватить*

Entered from the keyboard or from a program, machine-language commands are intercepted by a separate program-called an interpreter or compiler.

8) **portable** ['pɔ:təbl] – *переносимый*

A portable application is executable on multiple computers from removable storage without installation, and without writing settings or data onto a computer's non-removable storage.

9) **fundamentals** [ˌfʌndə'mentlz] – *основы, основные положения*

The course of Programming Fundamentals provides the core knowledge and basic programming skills to begin programming in any language.

Syn. basics.

10) **embedded system** [ɪm'bedɪd (em'bedɪd) 'sɪstəm] – *встроенная [встраиваемая] система*

An embedded system is a combination of hardware and software that performs a specific function within a larger system.

11) **subroutine** [ˌsʌbru:'ti:n] – *подпрограмма*

A subroutine or a procedure is a section of a computer program that is stored only once but can be used when required at several different points in the program, thus saving space.

2. Give English equivalents for the words in brackets.

1) (Язык ассемблера) _____ may also be called symbolic machine code.

2) (Процедурный язык) _____ is one of the most common types of programming languages in use, with notable languages such as C/C++, Java, ColdFusion and PASCAL.

3) If you (перехватываете) _____ someone or something that is travelling from one place to another, you stop them before they get to their destination.

4) Once a (подпрограмма) _____ has been written, tested and proved, it can be incorporated in any program as required.

5) Agricultural and industrial devices, automobiles, medical equipment, cameras, household appliances, airplanes, vending machines, toys and mobile devices are possible locations for an (встроенной системы) _____.

3. Replace by one word.

1) A computer programming language that resembles natural language or mathematical notation. _____

2) The system of communication, either spoken or written, consisting of the use of words in a structured way. _____

3) Able to be transferred from one machine or system to another. _____

4) The foundational knowledge a specialist needs. _____

5) A set of instructions that performs a specific task for a main program. _____

4. Fill in the blanks with the word from the active vocabulary.

1) A _____ application is software that can be used from portable storage devices.

2) Most common programming languages being used in _____ systems are C and assembly languages.

3) Several _____ may be used in one program.

4) A _____ is a writing system used for recording concepts in mathematics.

5) _____ languages are simple, but considered difficult to use, due to numerous technical details that the programmer must remember.

8. Put the verbs in the Past Simple Tense. Mind the reading of -ed ending.

to stop, to work, to use, to start, to complete, to believe, to decide, to produce, to invent, to pass, to construct, to design, to perform, to process, to finish, to record

9. Give the forms of the Past Simple Tense for the following irregular verbs.

to be, to begin, to build, to come, to do, to find, to get, to give, to go, to have, to hold, to keep, to know, to learn, to make, to meet, to read, to say, to see, to speak, to take, to think, to understand, to write, to draw, to spend

10. Open the brackets and put the verbs into the correct affirmative form.

1) Computer-assisted instruction (to help) _____ us to study at our own pace.

2) At the end of the 1930s computing engineering (to begin) _____ its new era.

3) In future computers (to interpret) _____ images analysing colours and texture patterns.

4) The oldest form of mechanical calculating device (to be) _____ the abacus.

5) Programmers (to use) _____ the language known as C to write systems software.

6) Due to minituarization the development of the fourth generation computers (to become) _____ possible.

7) Microsoft's roots (to go back) _____ as far as 1975, when the first commercially available personal computer (to appear) _____ on the cover of *Popular Electronics* magazine.

8) I (to know) _____ the results in a week.

9) Sun Microsystems (to create) _____ Java in the mid-1990.

10) When he (to come) _____ to the office, he (to sit) _____ at his table and (to start) _____ working.

11) The early 1980s (to see) _____ both IBM's and Microsoft's fortunes soar. Microsoft (to dominate) _____ the software market, just as IBM (to beat) _____ the personal computer market.

12) Computer equipment (to be) _____ different in many years.

13) Every time she (to get) _____ to the office, she always (to check) _____ her e-mail first.

14) Yesterday I (to go) _____ to the laboratory to see the experiment which (to take) _____ place there.

15) The Internet (to keep) _____ us informed about the latest news and also (to provide) _____ entertainment at home.

16) Each device (to perform) _____ a precisely specified task.

17) Every day millions of people (to try) _____ to find information on the Internet.

18) He (to know) _____ the password and could easily get into the system.

19) There isn't enough memory in your computer. It _____ (crash) soon.

11. Put the verbs into the negative form.

- 1) We perform addition before multiplication.
- 2) He graduated from the University two years ago.
- 3) We will study such programming languages as PASCAL and C at the next seminar.
- 4) This company produces high-speed computers.
- 5) At the lecture the professor spoke about the invention of the first electronic computer.
- 6) A slide-rule presents one of the quickest ways of calculation.
- 7) In 1995 Dr. Neuman worked out the concept of the stored program. (1945)
- 8) The academic year in our country begins in October.
- 9) We'll take four exams next term.
- 10) They hold conferences on information science every year.
- 11) The first computer operated at high speed.
- 12) I'll count the results with the help of a calculator.
- 13) Low-level languages are easier to use because they resemble spoken words.
- 14) A modem changes data into signals.
- 15) The Internet started in 1969. (1961)

12. Ask general questions to the following sentences.

- 1) Computers help much in training engineers.
- 2) They studied five programming languages.
- 3) In future machines will solve many problems which today are in competence of man.
- 4) The CPU controls the actual calculations inside the computer.
- 5) Mathematical operations include arithmetic and algebraic operations.
- 6) B.Pascal invented the first mechanical adding machine at the age of 19.
- 7) The fifth generation systems will use many innovation technologies.
- 8) Niklaus Wirth created Pascal in the late 1960s.
- 9) Scientists call Norbert Wiener the father of cybernetics.
- 10) During four years in Berlin S.Kovalevskaya wrote three dissertations.
- 11) A large computer uses several types of microprocessors.
- 12) John Kemeny and Thomas Kurtz developed BASIC in 1965.
- 13) The third generation of computers began in 1964.
- 14) The computer does arithmetic problems faster than any person.
- 15) Boole reduced logic to two-valued binary notation.

13. Answer the following questions.

- 1) When did you finish school?
- 2) What University do you study at?
- 3) When does the academic year begin?
- 4) What subjects do you study?
- 5) What subjects will you study next term?
- 6) How long does the course of studies at your department last?
- 7) How many specialities do the departments of your University train students in?

8) Who in your group studied abroad?

14. Change the following statements to questions beginning with the question-words given in brackets.

- 1) A compiler translates the commands into machine language. (What ... into?)
- 2) High-level languages use such commands as PRINT, OPEN, etc. (What commands ...?)
- 3) John Backus and his team began developing FORTRAN in the 1950s. (When ...?)
- 4) Nicklaus Wirth named the language he created after 17th-century mathematician Blaise Pascal. (Who ...after?)
- 5) FORTRAN became the first comprehensive high-level programming language. (What language ...?)
- 6) PASCAL still influences today's programming languages. (What languages ...?)
- 7) Ada Byron worked with Charles Babbage in the mid-1800s. (Who ...?)
- 8) Dennis Ritchie at Bell Laboratories designed C in the early 1970s. (When and where ...?)
- 9) Programs in LISP manipulate symbolic data organized in list structures. (What data ...?)
- 10) Portable programs will run on different computers. (What computers ...?)
- 11) I will send you the e-mail address by sms in a minute. (When ...?)
- 12) He'll print out two copies of the document for you. (How many copies ...?)

15. Put the verbs into the correct tense (present or future).

Main Clause	Conditional / Time Clause	
Future Simple	<i>if / provided / in case when / while / till (until) as soon as / before / after</i>	Present Simple
Main Clause	Objective Clause	
Future Simple	<i>if / when</i>	Future Simple

- 1) When he (return) I'll give him the key.
- 2) I'll stay here till the clock (strike) seven.
- 3) I don't know if I (be) there.
- 4) If I (find) the book I (give) it to you.
- 5) Can you tell me when Mr. Ellis (be) here next?
- 6) He doesn't know when he (find) a job.
- 7) I'll apologize if it (make) you feel better.
- 8) The lift will not start until you (press) the button.
- 9) When the professor (arrive) the audience will stand up.
- 10) Does he know when he (arrive) in England?
- 11) If it (rain) we'll stay at home.

16. Make these sentences by putting the verbs into the correct tense.

- 1) If I (get) there first, I (keep) a seat for you.
- 2) As soon as she (learn) to quickly type on a keyboard I (give) her a job.
- 3) She (phone) us if she (have) any problem.
- 4) I (not/ buy) this software package till the price (come) down.
- 5) She (be) delighted when she (hear) this.
- 6) What you (do) if you (not/find) your keys?
- 7) I (not/ wait) for you if you (be) late.
- 8) If she (not/ get) that new job, she (not/ be) happy.

17. Translate into English.

- 1) Мы встречаемся дважды в неделю и обсуждаем наши проблемы.
- 2) Я приду к вам, как только освобожусь.
- 3) Он рассказал тебе о своей поездке в Японию?
- 4) Не знаю, узнаю ли я ее, когда встречу.
- 5) Не забудьте выключить свет и закрыть окна перед тем, как уйдете.
- 6) Он не закончил работу, так как не было надежного электрического оборудования.
- 7) На каком этаже вы работаете?
- 8) Мы не применяем этот метод вычисления.
- 9) Мы отнесли принтер в ремонтную мастерскую.
- 10) Что вы знаете о емкости запоминающего устройства этого компьютера?
- 11) Эта книга не произвела на меня впечатления.
- 12) Когда я получу зарплату, я куплю новый смартфон.
- 13) Объектно-ориентированное программирование стало популярным в 1990-х.
- 14) Не переходи улицу, пока не увидишь зеленый свет.
- 15) Это устройство привлекло много внимания в прошлом году.
- 16) Когда прибывает поезд на Минск?
- 17) Я никуда не ходил прошлой ночью, я слишком устал.
- 18) Несколько сотрудников покинули компанию полчаса назад.
- 19) Когда я купил компьютер, с ним в комплекте шла антивирусная программа.
- 20) Я обсужу несколько вопросов с системным администратором, как только его увижу.

18. Look through the text and name types of programming languages mentioned in the text. Read the text attentively for the details.

Make sure you read the following words correctly:

Pascal [ˈpæskæl]

GUI [ˈɡu:i]

COBOL [ˈkəʊbɒl]

Zürich [ˈzʊərɪk]

ALGOL [ˈælgɒl]

Dartmouth [ˈdɑ:tməθ]

BASIC [ˈbeɪsɪk]

Switzerland [ˈswɪtsələnd]

Java [ˈdʒɑ:və]

command [kəˈmɑ:nd]

Visual Basic [ˈvɪʒuəl], [-zjuə-]

Massachusetts [ˌmæsəˈtʃu:səts]

Ada [ˈeɪdə]

Programming Languages

There are two general types of languages – low-level and high-level. Low-level languages are similar to a computer's internal binary language, or machine language. They are difficult for humans to use and cannot be used interchangeably on different types of computers, but they produce the fastest programs. Since people prefer to use words, a new type of language based on the machine code was developed. It uses words instead of decimal numbers to represent computer operations, e.g., 01 means ADD, 02 – SUBTRACT. However, “subtract” is a long word, so a shorthand form was used, namely, SUB. This *mnemonic language*¹ is known as assembly language.

High-level languages are less efficient but are easier to use because they resemble spoken or mathematical languages. High-level languages use such commands as PRINT, OPEN, GOTO, and INCLUDE, and mathematical notation to represent frequently used groups of machine-language instructions. These commands are intercepted by a program called an interpreter or compiler that translates the commands into machine language.

The first high-level language for business data processing was FLOW-MATIC. It was devised in the early 1950s by Grace Hopper, a US Navy computer programmer. At that time, computers were also becoming an important scientific tool. A team led by John Backus within the IBM Corporation began developing a language that would simplify the programming of complicated mathematical formulas. Completed in 1957, FORTRAN became the first comprehensive high-level programming language. Newer versions of the language are still widely used in engineering and scientific applications.

FORTRAN manipulated numbers and equations efficiently, but it was not suitable for commercial and business-related tasks, such as creating, moving, and processing data files. To address these needs COBOL was developed in the early 1960s.

John Kemeny and Thomas Kurtz, professors at Dartmouth College, developed a simplified version of FORTRAN, called BASIC, in 1965. BASIC was simple to learn and easy to use, and it became an important academic tool for teaching programming fundamentals to nonprofessional computer users. The wide use of microcomputers in the late 1970s transformed BASIC into a universal programming language. In the early 1990s the Microsoft Corporation enhanced BASIC with a GUI and developed Visual Basic for creating PC applications.

In 1968 Niklaus Wirth, a professor in Zürich, Switzerland, created Pascal, which he named after 17th-century French philosopher and mathematician Blaise Pascal. The language was taught in universities during the 1970s and 1980s, and it still influences today's programming languages. Pascal was based on ALGOL, a language that was popular in Europe during the 1960s.

Programs written in LISP manipulate symbolic (as opposed to numeric) data organized in list structures. Developed in the early 1960s at the MIT under the leadership of Professor John McCarthy, LISP is used mostly for artificial intelligence (AI) programming. Artificial intelligence programs attempt to make computers more useful by using the principles of human intelligence in their programming.

Programmers use the language known as C to write systems software, but many professional and commercial-quality applications are also written in C. Dennis Ritchie at Bell Laboratories originally designed C for the UNIX OS in the early 1970s.

In 1979 the language Ada, designed at CII Honeywell Bull by an international team led by Jean Ichbiah, was chosen by the United States Department of Defense as its standardized language. It was named Ada, after Augusta Ada Byron, who worked with Charles Babbage in the mid-1800s and is credited with being the world's first programmer. The language Ada has been used to program embedded systems, which are integral parts of larger systems that control machinery, weapons, or factories.

Languages such as FORTRAN, Ada, and C are called procedural languages because programmers break their programs into subprograms or subroutines (procedures) to handle different parts of the programming problem. Such programs operate by “calling” the procedures one after another to solve the entire problem.

During the 1990s object-oriented programming (OOP) became popular. It allows programmers to construct their programs out of *reusable “objects.”*² A software object can model a physical object in the real world. It consists of data that represents the object's state and code that defines the object's behaviour. The first language for object-oriented programming was C++, designed by Bjarne Stroustrup of Bell Laboratories in the mid-1980s. James Gosling of Sun Microsystems Corporation created a simplified version of C++ called Java in the mid-1990s. Java has become popular for writing applications for the Internet.

Hundreds of programming languages or language variants exist today. Most of them were developed for writing specific types of applications. However, many companies insist on using the most common languages so they can take advantage of programs written elsewhere and ensure that their programs are portable, which means that they will run on different computers.

NOTES

1. mnemonic [ni'tɒnɪk] language – мнемонический (символический) язык
2. reusable object – многократно (повторно) используемый объект

19. Express your agreement or disagreement with the following statements.

- 1) The first high-level language was developed for scientific purposes.
- 2) Assembly language uses a mnemonic to represent each low-level machine instruction.
- 3) Low-level languages use words instead of decimal numbers.
- 4) FORTRAN is a language used in object-oriented programming.
- 5) AI programming languages were developed in the early 1960s.
- 6) BASIC stands for “Beginner's All-purpose Symbolic Instruction Code.”

20. Complete the following sentences according to the text.

- 1) Low level languages include
- 2) High level languages can be classified into
- 3) ... is considered to be a universal high-level programming language.
- 4) Object-oriented programming languages include
- 5) ... is used for writing applications for the Internet.
- 6) ... was developed for AI programming.

21. Match the names of programming languages and their developers.

- | | |
|-----------------|--|
| 1) FLOW-MATIC | a) an international team led by Jean Ichbiah |
| 2) FORTRAN | b) Bjarne Stroustrup |
| 3) Pascal | c) Dennis Ritchie |
| 4) BASIC | d) James Gosling |
| 5) LISP | e) Grace Hopper |
| 6) C++ | f) a team led by John Backus |
| 7) C | g) Niklaus Wirth |
| 8) Visual Basic | h) John McCarthy |
| 9) Ada | i) John Kemeny and Thomas Kurtz |
| 10) Java | j) the Microsoft Corporation |

22. Ask your groupmates and let them answer about:

- 1) general types of programming languages;
- 2) what mnemonic language is;
- 3) what field the first high-level language was devised in;
- 4) what the difference between FORTRAN and BASIC is;
- 5) what they know about PASCAL;
- 6) programs written in LISP;
- 7) the fields where C is applied;
- 8) the fields where the language Ada is used;
- 9) if they know the first language for OOP;
- 10) the fields where Java is applied.

23. Discuss in pairs and explain the difference between:

- a) machine code and assembly language;
- b) low-level and high-level languages;
- c) procedural, logical and object-oriented programming languages.

24. Come up with the idea about the necessity to develop universal programming languages for creating programs which can run on different computers.

Unit 2

Grammar: Continuous Tenses (Active)

Oral Topic: The Internet and the World Wide Web

Lexical and Grammar Exercises

1. Read the following words. Translate the sentences into Russian. Learn the words by heart.

1) **research** [rɪ'sɜːtʃ] – (научное) исследование; изучение; изыскание; исследовательская работа

Research on computer networks at Yale concentrates on designing highly efficient Internet backbone networks. Philip Stevens is a director of a UK-based research organization working on trade, health and intellectual property issues.

2) **to permit** [pə'mɪt] – *позволять, разрешать, давать разрешение*

Syn. to let, to allow

The security system will not permit you to enter without the correct password. Machine-readable passports will permit precise identity checking.

3) **hypertext** ['haɪpətɛkst] – *гипертекст*

Hypertext allows a user to move from one Web page to another.

HTML (HyperText Markup Language) – язык разметки гипертекста

HTML stands for HyperText Markup Language and is the code used to build websites. HTML is the code a web browser needs to show the text, graphics and hyperlinking systems.

4) **search engine** ['sɜ:tʃ ,endʒɪn] – *поисковая система*

Google users can ask the search engine to remove results about them that are inaccurate or no longer relevant. Google's search engine evolves, and so does the interaction between people and the engine.

5) **to view** [vju:] – *обозревать, оглядывать, просматривать*

Syn. to observe, to examine

The 4-inch screen is big enough to view movies and web pages clearly. My Search History allows users to view all the web pages they have visited and Google searches they have made over time.

6) **provider** [prə'vaɪdə] – *поставщик, организация, ответственная за поставку*

Internet Service Provider – *поставщик удаленных подключений к интернету*

The company is now one of the regions main Internet service providers. Founded in 2003, KORE is the world's largest managed network services provider specializing in the Internet of Things (IoT) and Machine to Machine (M2M) communications.

7) **applet** ['æplət] - *прикладная минипрограмма*

Java ['dʒɑ:və] **applet** – *Java-приложение, Java-апплет*

Web page designers can make their pages more interactive and dynamic by including small programs written in Java called Java applets. The applet is usually embedded in an HTML page on a Web site and can be executed from within a browser.

8) **to render** ['rendə] – *интерпретировать, представлять, изображать*

When Web browsers download the pages, they know how to render the HTML (convert the code into the text and graphics for display on the screen) and run the Java applets. A site you build in Moonfruit is designed to render in Flash, HTML, or mobile HTML5, depending on how the user is accessing it.

9) **extraction** [ɪk'strækʃ(ə)n] – *извлечение; выбор, выборка*

On the basis of technology, the global market is segmented into machine translation, information extraction, and text and voice processing. PARIS & NEW YORK is a world leading developer of artificial intelligence and machine-learning based text recognition, information extraction and intelligent document classification toolkits.

2. Give English equivalents for the words in brackets.

1) The (исследование) _____ found that the maths performance of the students who accessed social networks on a daily basis was 20 points lower than those who never went online to chat.

2) Established in 1999, Iristel is a leading global (поставщик) _____ of Voice over Internet Protocol (VoIP) services with its headquarters in Toronto, Canada.

3) The tablet (позволяет) _____ users to write with their fingers and with a digital stylus.

4) The World Wide Web was created by combining two previous innovations: (гипертекст) _____ and the Internet.

5) (Язык разметки гипертекста) _____, the fifth version of this language, adds a series of new capabilities for web pages that advocates say will radically change the way we use the web.

6) According to the agency the technologies developed in the program will also provide the mechanisms for content discovery, information (извлечение) _____, information retrieval, user collaboration.

3. Replace by one word.

1) A computer program that finds information on the Internet by looking for words that you have typed in. _____

2) A computer program that is a part of a larger program, and that performs a particular job, such as finding documents on the Internet. _____

3) A computer language used for producing pages of writing and pictures that can be put on the Internet. _____

4) A company that provides the technical services that allow people to use the Internet. _____

5) Serious study of a subject, in order to discover new facts or test new ideas. _____

6) A special type of database system in which objects (text, pictures, music, programs, and so on) can be creatively linked to each other. _____

7) To allow something to happen, especially by an official decision, rule, or law. _____

4. Fill in the blanks with the word from the active vocabulary.

1) _____ are programs that search documents for specified keywords and return a list of matching documents.

2) A _____ is a small Internet-based program written in Java, a programming language for the Web, which can be downloaded by any computer.

3) Computers are used when the time saved off sets their cost, which is one of the many reasons they are used so much in business, industry, and _____.

4) While working for the European Particle Physics Laboratory, in the 1980s, Berners-Lee saw an opportunity to join _____ with the Internet.

5) This technology will _____ a cloud storage provider to scan for known pirated files while keeping your unique personal data completely private.

6) Created by Sir Tim in 1991, _____ tells a web browser everything it needs to know: what a web page does, where it goes and what it looks like.

5. Study the following table.

		Present Continuous	Past Continuous	Future Continuous
+	I he, she, it we, you, they	am Ving is Ving are Ving	was Ving was Ving were Ving	will be Ving
-	I he, she, it we, you, they	am not Ving/'m not Ving is not Ving/isn't Ving are not Ving/aren't Ving	was not Ving/wasn't Ving was not Ving/wasn't Ving were not Ving/weren't Ving	will not Ving/ won't be Ving
?	I he, she, it we, you, they	am ... Ving...? is ... Ving...? are ... Ving...?	was ... Ving...? was ... Ving...? were ... Ving...?	will ... be Ving?
USE				
		-for actions taking place now, at the moment of speaking; -for temporary actions, that are going on around now, but not at the actual moment of speaking; -with adverbs such as: always, constantly, continually, etc. for actions which happen very often, usually to express irritation, annoyance, anger; -for actions that we have already arranged in the near future, especially if the time and place have been already decided; -for changing and developing situations.	-for an action which was in progress at a stated time in the past; -for an action which was in progress when another action interrupted it; -for two or more simultaneous past actions; -in the introduction to a story before the main events are described.	-for an action, which will be in progress at a stated future time -for an action which will definitely happen in the future as the result of a routine or arrangement) -when we ask politely about someone's plans for the near future
		now right now at the moment these days nowadays still	at 5 o'clock - from 5 to 7 at that time yesterday while when as all day/night, /morning, etc	this time tomorrow, at 5 tomorrow

Stative verbs: *appear, resemble, seem, consist of, contain, have, come from, concern, cost, fit, suit, be, exist, forget, know, realize, understand, dislike, hate, like, love, prefer, need, want, wish, believe, doubt, imagine, think, suppose, belong to, have, own, owe, possess, feel, hear, notice, see, smell, sound, taste.*

6. Open the brackets and put the verbs into the correct affirmative form.

- 1) This company currently (work) on the LSI design of a single chip which will integrate a genetic algorithm, a specialized memory system and a dynamic Boolean function.
- 2) I (write) an Internet page about my area at 4.30 yesterday.
- 3) He always (play) computer games!
- 4) Be careful! You (send) your e-mail to the wrong address!
- 5) While I (visit) that website, my friend (learn) how to use the Internet.
- 6) Look! He (try) to download their UFO files!
- 7) When I (finish) my project on the history of the Internet, my computer crashed.
- 8) They (develop) new multifunctional device now.
- 9) This time tomorrow the scientist (test) this application.
- 10) The engineers from this university (work) at another type of a mobile robot this year.
- 11) The University informs us that the team currently (work) on the final robot, which will have advanced features.
- 12) We (work) at the seminar this time tomorrow.
- 13) The report highlighted that 53% of professionals (use) traditional firewalls and 47% (use) a cloud service provider.
- 14) The manager said they (work) to adapt the software.
- 15) Now our five finalists (develop) the most promising software solutions to enable children to teach themselves basic reading.
- 16) Now we (reduce) the cost to communicate and (provide) businesses with greater Internet access.
- 17) Maybe someday, we (browse) the Internet on the palms of our hands.
- 18) While he (work) at CERN he started working on hypertext protocols to facilitate sharing and upgrading of information.
- 19) It gives more direct and intuitive control when you (use) things like the browser or entering text.
- 20) As more and more services are hosted in the cloud, we (use) HTML and JavaScript more than ever.

7. Open the brackets and put the verbs into the correct negative form.

- 1) The kids (not, play) Minecraft on a computer right now.
- 2) A student and her friend (not, study) in the computer labs when the incident took place.
- 3) This summer CATC (not, organize) a computer camp to develop students' technology skills.
- 4) Thomson (not, try) to highlight the link between over-use of social networks and issues such as depression this year.

5) Ann (not, try) to share a link to the report, when she received a wide variety of error messages and warnings.

6) The National Physical Laboratory now (not, conduct) experiments aimed to recognize human speech.

7) In some years IBM publication department (not, fill) 100% translation demands via machines.

8) A special team experienced in the field of new technologies (not, consult) the Lab at that time.

9) Before that computer broke down, it (not, transmit) danger signals.

10) Robert (not, play) a game on the computer, when she came back there.

11) Mr Shackleton (not, run) his own Internet cafe in Warsaw at the time of the attack.

12) At that time the company (not, deliver) reliably high-speed Internet.

13) Your phone (not, fight) against all the others trying to send and receive data with next-generation mobile networks.

14) Things are lining up to make 5G a reality in 2019 in your smartphones.

8. Ask general questions to the following sentences. Express disbelief using the word really.

1) I was working on my essay for ten minutes, when the screen went blank.

2) Netflix is now paying two major Internet providers for a more direct path into the homes of all those people watching movies and TV shows on its popular video streaming service.

3) He was replacing the motherboard, when it happened.

4) We are running the test program.

5) In a few years, small intelligent robots will be dealing with all the household chores.

6) Police officers were monitoring social media, internet forums and BlackBerry messaging networks that day.

7) Now most phone systems used by companies in the United States are operating on the Internet.

8) They were e-mailing each other at six yesterday.

9) The supermarkets in the US are testing a new robot checkout system.

10) These days, information technologies are advancing stunningly fast.

9. Change the following sentences to questions using the words given in brackets.

1) Nowadays computer development is rapidly progressing. (How ... ?)

2) I was searching the Web for sites on digital cameras from 5 to 7 yesterday. (When ... ?)

3) Researchers are currently developing microchips called digital signal processors (DSPs). (What microchips ... ?)

4) The floppy drive is now slowly disappearing. (What drive ... ?)

5) I will be updating my site at noon tomorrow. (What tomorrow?)

6) In the early 80s, different networks were adopting TCP/IP as their communications standard. (What ... in the early 80s?)

7) Now enterprise network managers are focusing on the content and services they are delivering over the Internet. (Whonow?)

8) While I was writing an email, the computer suddenly went off. (What ... ?)

9) Most of the software development was going on in the universities, military, and businesses that were big enough to afford the room-filling computers, called mainframes. (Where ...?)

10) Now Apple is working with virtual reality companies, such as Unity Technologies and Epic Games, bringing their VR tools to the Mac. (What virtual reality companies ... ?)

10. Put the verbs in brackets into the correct form (Simple or Continuous).

1) He (play) computer games every day. What game he (play) now? He always (play) computer games!

2) Jobs and Wozniak (found) Apple Computer Inc on April,1 1976.

3) If Google completely reworks its browser to meet the entry requirements of the Windows Store, users (be) unable to use the browser as the default on any Windows 10 machine.

4) They (release) a new version of software next month.

5) He came in and saw Lizzy who (sit) in front of her computer drawing a 3D model.

6) What computer languages you normally (use)? What computer languages you (use) in your current project?

7) We (buy) a new computer two days ago. Now the job will be done much more quickly.

8) What you (do) yesterday at 7 o'clock? – I (browse) e-commerce sites.

9) I didn't hear what he (say). I (run) the virus scan.

10) We are a small company specializing in personal service: we (install) software and hardware. We (install) a new program on the server and it will be online soon! Please keep watching!

11) I tell him he should not eat while he (type).

12) This company (work) to develop evolvable software this time next week.

13) On November 10, 1983, at the Plaza Hotel in New York City, Microsoft Corporation formally (announce) Microsoft Windows.

14) I have not personally experienced a virus attack, but I always (take) precautions against infecting my computer.

15) Last month Google's Chrome web browser (add) preliminary support for voice commands, opening the door to a voice-driven future.

16) Google (get) ready to release the next generation of its Pixel phone next month.

17) Soon, some of the cleverest business intelligence tools (be) a regular feature in most software stacks.

18) Today Google (introduce) a new logo.

19) You (remember) what device (look after) cache coherency?

20) If you choose to send usage statistics and crash reports to Google, the browser (send) us this information along with a unique application number as well.

11. Read the text attentively for details.

The Internet and the World Wide Web

The Internet was originally formed in 1970 as a military network called ARPANET (Advanced Research Projects Agency Network) as part of the United States Department of Defense. The network opened to nonmilitary users in the 1970s, when universities and companies doing defense-related research were given access, and flourished in the late 1980s as most universities and many businesses around the world came online. In 1993, when commercial Internet service providers were first permitted to sell Internet connections to individuals, usage of the network grew tremendously.

British physicist Tim Berners-Lee invented the World Wide Web in 1992 as a way to organize and access information on the Internet. Its introduction caused the popularity of the Internet to explode nearly overnight. Instead of being able to download only simple linear text, with the introduction of the World Wide Web users could download Web pages containing text, graphics, animation, video, and sound. A program called a Web browser runs on users' PCs and workstations and allows them to view and interact with these pages. Hypertext allows a user to move from one Web page to another by using a mouse to click on special hypertext links. Users "surf the Web" when they jump from one page to another in search of information. Special programs called search engines help people find information on the Web.

Many commercial companies, organizations and educational institutions have Web sites, or sets of Web pages, that their customers can view. Web sites are maintained on computers called Web servers. Most companies and many organizations have their own Web servers. These servers often have databases that store the content displayed on their sites' pages. Individuals with Web sites can use the Web servers of their Internet service providers.

Web pages are programmed using a language called HTML (HyperText Markup Language). Web page designers can make their pages more interactive and dynamic by including small programs written in Java called applets. When Web browsers download the pages, they know how to render the HTML (convert the code into the text and graphics for display on the screen) and run the Java applets. Web servers are commonly programmed in C, Java, or a language called Perl (practical extraction and reporting language), which was developed in the mid-1980s by Larry Wall, a computer system administrator.

12. Express your agreement or disagreement with the following statements.

- 1) The Internet was originally formed in 1965 as a civil network called ARPANET.
- 2) In the 1970s universities and companies doing defense-related research were given access to the Internet.
- 3) The permission to sell Internet connections to individuals caused the tremendous growth in network usage in 1993.
- 4) Bill Gates invented the World Wide Web in 1992 as a way to organize and access information on the Internet.
- 5) With the introduction of the World Wide Web users could download Web pages containing text, graphics, animation, video, and sound.

- 6) A program called a Web interface allows users to view and interact with these pages.
- 7) Hypertext allows a user to move from one Web page to another by using a mouse to click on special hypertext links.
- 8) A Web site is a set of Web pages.
- 9) Computers called workstations maintain Web sites.
- 10) Servers often have databases that store the content displayed on their sites' pages.
- 11) Web pages are programmed using a language called Perl.
- 12) Small programs written in Java called applets help designers make Web pages more interactive and dynamic.

13. Complete the following sentences according to the text.

- 1) In 1970 the Internet
- 2) In the 1970s universities and companies doing defense-related research
- 3) In the late 1980s most universities and many businesses
- 4) In 1992 British physicist Tim Berners-Lee
- 5) In 1993 commercial Internet service providers
- 6) The World Wide Web allows users
- 7) A Web browser enables users
- 8) Hypertext lets users
- 9) HyperText Markup Language is used for
- 10) Servers have databases that can store
- 11) The languages commonly used for programming Web servers are

14. Ask your groupmates:

- 1) when the Internet was originally formed;
- 2) when the network was opened to nonmilitary users;
- 3) when usage of the Internet grew tremendously;
- 4) what the World Wide Web is;
- 5) who invented the World Wide Web;
- 6) what functions a Web browser can perform;
- 7) what hypertext deals with;
- 8) if many commercial companies, organizations and educational institutions have Web sites;
- 9) if individuals with Web sites can use their Internet service providers' servers;
- 10) what languages are used for programming Web pages/Web servers.

15. Let's discuss.

- 1) Do you like surfing the Internet? How does it help you with your daily activities?
- 2) Which search engines do you prefer to use? Why?
- 3) What recurring Internet problems do you face?
- 4) What will the Internet be like in 100 years?

16. Dwell upon the following statement.

Mitchell Kapor said, "Getting information off the Internet is like taking a drink from a fire hydrant."

Do you agree or disagree with the statement?

Unit 3

Grammar: Perfect Tenses (Active)

Oral Topic: Careers in the Computer Field

Lexical and Grammar Exercises

1. Read the following words. Translate the sentences into Russian. Learn the words by heart.

1) **systems analyst** ['sɪstəmz' æn(ə)lɪst] – *специалист по системному анализу; системотехник*

A **systems analyst** is an information technology (IT) professional who specializes in analyzing, designing and implementing information systems.

2) **computer security specialist** [kəm'pjʊ:tə sɪ'kjʊərətɪ 'speʃ(ə)lɪst] – *специалист по компьютерной безопасности*

Computer security specialists, or information security analysts, are responsible for protecting company's information assets and making sure only authorized people gain access to confidential information.

3) **applications programmer** [æplɪ'keɪʃ(ə)nɪz 'prəʊgræmə] – *прикладной программист, разработчик прикладного программного обеспечения, разработчик приложений*

The application programmer is responsible for designing and testing program logic, coding programs, program documentation and preparation of programs for computer operations.

4) **systems programmer** ['sɪstəmz' 'prəʊgræmə] – *системный программист; специалист, разрабатывающий или обслуживающий системные и/или сетевые программы; специализируется на организации взаимодействия системного и прикладного программного обеспечения*

The system programmer (or systems programmer) installs, customizes, and maintains the operating system, and also upgrades products that run on the system.

5) **database programmer** ['deɪtəbeɪs 'prəʊgræmə] – *специалист по проектированию баз данных*

A database programming professional or database programmer is responsible for maintaining a database, which includes preserving data integrity. A database programmer may design, create, and implement a database from scratch.

6) **designer of graphical user interfaces** [dɪ'zaɪnər ɒv 'græfɪkəl 'ju:zər'ɪntə'feɪsɪz] – *разработчик графических пользовательских интерфейсов*

User Interface (UI) designer focuses on anticipating what users might need to do and ensuring that the interface has elements that are easy to access, understand,

and use to facilitate those actions. Designers of graphical user interfaces bring together concepts from interaction design, visual design, and information architecture.

7) **systems administrator** [sɪstɪmz əd'mɪnɪstreɪtə] – *системный администратор*

There are different types of computer system administrators based on their roles and responsibilities: server administrators, network administrators, database administrators, security systems administrators.

8) **computer operator** [kəm'pjʊ:tər 'ɒpəreɪtə] – *оператор ЭВМ*

Computer operators oversee the running of computer systems, ensuring that the machines and computers are running properly. Computer operators have specialized knowledge of computer systems, networks, mainframes, and hardware.

9) **hardware designer** ['hɑ:dweə dɪ'zainə] – *разработчик (аппаратного) оборудования, разработчик аппаратных средств*

Hardware designers are responsible for overall product functionality, they work with hardware, firmware and software and manage all the resources to ensure that the end product works. As compared to hardware designers hardware engineers are in charge of hardware part only, they work with schematics and layout.

10) **data processing manager** ['deɪtə'prəʊsɛsɪŋ'mænɪdʒə] – *руководитель отдела по обработке данных*

A data processing manager is responsible for the storage and organization of information and data in a workplace. The everyday duties of data processing managers include communicating and working closely with members of other departments, coordinating Internet operations, managing data safety, and taking charge of a group of computer programmers or analysts.

11) **database administrator** [deɪtə'beɪs əd'mɪnɪstreɪtə] – *администратор базы данных*

A database administrator (DBA) directs or performs all activities related to maintaining a successful database environment. A database administrator's responsibilities include designing, implementing, and maintaining the database system.

12) **Web-page designer** [wɛb-peɪdʒ dɪ'zainə] – *вебдизайнер, разработчик Интернет-сайтов [порталов]*

Web-designers create and maintain websites. Web-designers of different areas deal with web graphic design; interface design; authoring, and search engine optimization.

13) **chief information officer** (CIO) [tʃi:f ,ɪnfə'meɪʃ(ə)n 'ɔ:fɪsə] – *директор по информации (руководитель компании, который отвечает за создание и функционирование системы хранения и использования информации внутри компании)*

Chief information officer is a job title commonly given to the most senior executive in an enterprise responsible for the information technology and computer systems that support enterprise goals.

2. Give English equivalents for the words in brackets.

1) In mainframe environments, there is one (системный программист) _____ for about 10 or more (разработчиков прикладного ПО) _____, and they generally have higher salaries than (разработчики приложений) _____.

2) A (разработчик аппаратных средств) _____ is typically involved in designing PCBs, boards and chips.

3) (Администраторы баз данных) _____ design, write and take care of computer database systems so that the right person can get the information they need at the right time.

4) The job of a (специалиста по безопасности) _____ is to determine the best way to secure the infrastructure, including physical security and cyber security.

5) Pursuing a career as a (менеджер по обработке данных) _____ could result in employment as a business analyst, systems programmer, or information systems manager.

6) (Менеджер отдела управленческих информационных систем) _____ oversees the people, processes and technologies within a company's IT department to ensure they deliver outcomes that support the goals of the business.

3. Replace by one word.

1) A specialist who uses analysis and design techniques to solve business problems using information technology. _____

2) These workers use specific database computer languages to write and test new database software. _____

3) Their job is to make the websites and mobile applications a pleasure to use. _____

4) A person whose job is to write programs for an organization's computer systems. _____

5) Specialists who use software to store and organize data at insurance companies, banks, and hospitals. They make sure that data is available to users and is secure from unauthorized access. _____

6) A company executive who is responsible for the management, implementation and usability of information and computer technologies. _____

4. Fill in the blanks with the word from the active vocabulary.

1) A _____ is a person who analyzes a complex process or operation in order to improve its efficiency, especially by applying a computer system.

2) A _____ creates an information-oriented, systematic graphic design which helps people understand complex information and makes visual communication successful.

3) _____ implement and maintain security systems.

4) IT _____ develop, create, and modify general computer applications software or specialized utility programs.

5) _____ keep the interface simple, make page layout purposeful considering the spatial relationships between items on the page, structuring the page based on importance and strategically using colour, light, contrast, texture and fonts.

6) _____ , also known as database developers, write instructions that affect the way in which sets of records stored in a computer system are organized, managed, accessed and updated.

7) The role of the _____ is that of managing a data processing function of the computer itself, and of people responsible for systems analysis and design, programming and operation.

8) _____ are divided into two common specialities: system DBAs who are responsible for the technical aspects of a database such as installing upgrades and patches to fix program bugs, and application DBAs who support a database that has been designed for a specific application.

5. Match the words with similar meaning.

- | | |
|------------------|----------------|
| 1) tremendous | a) to need |
| 2) growth | b) to perform |
| 3) to accomplish | c) unprotected |
| 4) safety | d) colossal |
| 5) vulnerable | e) company |
| 6) business | f) security |
| 7) to require | g) evolution |

6. Match the words with opposite meaning.

- | | |
|----------------|-------------------|
| 1) to protect | a) to deteriorate |
| 2) to improve | b) to attack |
| 3) diversified | c) unprotected |
| 4) secure | d) similar |

7. Study the following table. Formulate the rule.

	Present Perfect	Past Perfect	Future Perfect
+	I He, she, it We, you, they have Ved / V₃ has Ved / V₃	had Ved / V₃	will have Ved / V₃
-	I He, she, it We, you, they have not Ved / V₃ has not Ved / V₃	had not Ved / V₃	will not have Ved / V₃
?	Have I, we, you, they Ved / V₃? Has he, she, it Ved / V₃?	Had I, he, she, it, we, you, they Ved / V₃?	Will I, he, she, it, we, you, they have Ved / V₃?
	already recently lately just yet this week since	before after by that time by the end of last year	by that time tomorrow by next Friday before when

ever never		
USE		
<p>- for an action which started in the past and continues up to the present, especially with state verbs such as <i>be, have, like, know, etc.</i>, in this case, we often use <i>for and since</i>;</p> <p>- for an action which recently finished and which result is visible in the present;</p> <p>- for an action which happened at an unstated time in the past. The exact time is not mentioned because it is either unknown or unimportant, the emphasis is placed on the action;</p> <p>- for an action which has happened within a specific time period which is not over at the moment of speaking, we often use words and expressions such as <i>today, this morning / evening / week / month, etc.</i></p>	<p>- for an action which happened before another past action or before a stated time in the past;</p> <p>- for an action which finished in the past and which result was visible in the past.</p>	<p>- for an action which will be finished before a stated future time.</p>

8. Open the brackets and use the verbs in brackets in the correct form.

- 1) The role of a computer operator _____ (change) over the years.
- 2) I _____ (compile) the program by tomorrow.
- 3) Thank you for everything. You _____ (help) me a lot.
- 4) They _____ (load) the program before we came.
- 5) Jenny already _____ (explain) the matter to the system administrator and I think he understands.
- 6) Someone _____ (take) my USB flash drive.
- 7) The engineers reported that they _____ (build) a new mobile robot.
- 8) She can't get in the lab. She _____ (lose) her keys.
- 9) Computers _____ (become) more powerful.
- 10) I _____ (finish) this exercise by the time the bell rings.
- 11) It _____ (happen) several times already.
- 12) Don't you think that it's the most dangerous experiment we ever _____ (make)?
- 13) By next summer I _____ (be) to fifteen conferences.
- 14) You'll never guess who I just _____ (meet).
- 15) The team _____ (experience) several setbacks so far.
- 16) Since 1986 the number of known viruses _____ (grow) to several thousand different viruses.
- 17) When the first digital computer was developed, the first analog computer already _____ (be) in use for some time.
- 18) When he asked me where his wireless mouse was, I said that I even _____ (not see) and _____ (not take) it.

19) You _____ (spend) much efforts before you can run an IT corporation.

20) I came a minute late. Eve already _____ (to design) a site.

9. Complete general questions.

- 1) ... the virus ... and ... further damage? (spread, cause)
- 2) ... you ever ... the operating system? (install)
- 3) ... they ... an attempt to penetrate our computer system? (make)
- 4) ... you ... abroad before you started working for the company? (be)
- 5) ... he ... back home by next September? (come)
- 6) ... Bill Gates, co-founder and CEO (Chief Executive Officer) of the Microsoft software company, ... his book "The Road Ahead" by 1999? (write)
- 7) ... science ... and productivity ... in leaps and bounds recently? (advance, grow)
- 8) ... her browser ... the page she wanted by the time she returned? (find)
- 9) ... he ... for his online time before using the ISP? (pay)
- 10) ... she ... a diagram to illustrate her report? (draw)
- 11) ... we ... all the projects by the end of the seminar? (discuss)

10. Ask special questions beginning with the words given in brackets.

- 1) We have had three power cuts this week. (How many...?)
- 2) I guess they will have received your next letter before Christmas. (Before what holiday ...?)
- 3) Peter has worked for three different companies since he graduated two years ago. (Where ...?)
- 4) When Linus Torvalds had written a basic kernel by 1991, he released the source code to the Linux kernel on the Internet. (By what time ...?)
- 5) We will have read all these books according to the list by the exam time. (What ...?)
- 6) We haven't had any complaints so far. (How many ...?)
- 7) When I went to a university groupmates reunion last week, I was very surprised – so many things had changed. (What ...?)
- 8) Next month he will have worked for the company for six years. (How long ...?)
- 9) He has made good progress in English since winter. (Since when ...?)
- 10) The student hasn't taken part in our research because of his illness. (Why ...?)

11. Translate from Russian into English.

- 1) Как долго ты не был в сети?
- 2) Ты уже закончил свой проект?
- 3) Вчера он купил новую флешку, так как потерял свою старую.
- 4) Я уже подготовлю всю информацию об этом контракте, если вы придете в 5 часов.
- 5) Как долго вы знаете друг друга?

- 6) Поскольку я знал его уже около 10 лет, я рекомендовал его как хорошего специалиста.
- 7) 4-часовой поезд на Минск уже отправился.
- 8) Полагаю, он примет какое-то решение еще до начала собрания.
- 9) Я вас где-то уже видел. Ваше лицо мне знакомо.
- 10) Вчера мы получили от него сообщение. Мы долгое время не получали от него никаких известий.

12. Study the following table.

Present Perfect is used when	Past Simple is used when
Has the time period finished?	
- time period hasn't finished. <i>Example: I have seen three movies this week. (This week has not finished yet.) I have seen her this morning. (It is still morning.)</i>	- time period has finished. <i>Example: I saw three movies last week. (Last week has finished.) I saw her in the morning. (It is evening.)</i>
Is it new information or old?	
- giving recent news. <i>Example: Martin has crashed his car again. (This is new information.)</i>	- giving older information. <i>Example: Martin crashed his car a month ago. (This is old information.)</i>
Is it a specific time?	
- the time is not specific. <i>Example: I have seen that movie already. (We don't know when.) Have you ever been to Canada? I have been to Canada twice.</i>	- the time is clear. <i>Example: I saw that movie on Thursday. (We know exactly when.) He went to Canada last summer. (We know exactly when.)</i>
Is a complete past action connected to the present?	
- actions are connected to the present with a stated or unstated time reference <i>Example: I have seen Queen Elizabeth II. (She is alive – action connected to the present).</i>	- actions are not connected to the present with a stated or implied time reference <i>Example: I saw Steve Jobs. (Action not connected to the present – Steve Jobs is dead.)</i>
Has the action finished (sentences with “for” or “since”)?	
- with <i>for</i> and <i>since</i> when the actions have not finished yet. <i>Example: I have lived in Victoria for five years. (I still live in Victoria.)</i>	- The Past Simple is used with <i>for</i> when the actions have already finished. <i>Example: I lived in Victoria for five years. (I don't live in Victoria now.)</i>

13. Put the verbs in brackets into the Past Simple or Present Perfect.

- 1) They _____ (work) over last weekend to meet deadline.
- 2) Where you (buy) this encyclopedia? – I _____ (buy) it when I _____ (be) in the U.K.

- 3) This is the first time he _____ (be) late.
- 4) Digital technology _____ (change) the media.
- 5) We _____ (be) friends since we _____ (be) at university together.
- 6) At last! Where you _____ (be)?
- 7) You look happy. You _____ (pass) your exams?
- 8) Stephen Hawking is a world famous scientist. He _____ (not/win) the Nobel Prize yet. He _____ (write) his famous book about time in 1988 and he _____ (sell) already more than 8 million copies.
- 9) I _____ (be) to London on many occasions.
- 10) When you _____ (get) your diploma in Computer Science?
- 11) You ever _____ (be) abroad? – Yes, I _____ (be) there from 1998 to 2000.
- 12) What lessons you _____ (have) today?
- 13) Maria Sklodowska-Curie and Pierre Curie _____ (work) together for most of their lives.
- 14) I always _____ (know) he is a good analyst.
- 15) He _____ (meet) her at the conference.
- 16) She _____ (own) the business from 2001 to 2003.
- 17) She _____ (own) the business since 2001.
- 18) How many online interviews you _____ (do)?
- 19) I _____ (find) your file. – Oh, great. Where you _____ (find) it?
- 20) Bill Gates _____ (earn) millions of dollars since the foundation of Microsoft.
- 21) John _____ (go). He _____ (leave) last night.
- 22) I _____ (have) my computer since Christmas.
- 23) I originally _____ (study) electrical engineering at university and I _____ (graduate) with a first-class degree.
- 24) I'm writing in connection with the advertisement which _____ (appear) on 21 June.
- 25) Tom _____ (finish) a computer course last July. He _____ (be) a website designer since September.
- 26) I _____ (have) problems with my computer lately.
- 27) I _____ (not/work) as a consultant before.
- 28) Since I _____ (start) university, I _____ (not/have) much spare time.
- 29) He _____ (have) a number of jobs. He _____ (be) a project manager, a financial analyst and he _____ (start) his own Internet business.
- 30) It seems as if you _____ (not/have) much rest this week.
- 31) When she _____ (be) younger, she _____ (play) computer games every day.
- 32) I have to finish the report. I (start) it last Monday but so far I _____ (write) only 5 pages.
- 33) We _____ (see) each other only twice this month.
- 34) Work _____ (be) so difficult lately. I _____ (work) late every night this week. I'm tired and I _____ (not/get) much sleep last night.

35) Scientists still _____ (not/find) a cure for many diseases.

36) They _____ (not/be) very successful over the last 5 years.

37) I _____ (complete) now a postgraduate degree in business administration.

38) I already _____ (work) for several companies on a temporary basis.

39) My job _____ (change) a lot since last year.

14. Use Present Simple, Present Continuous, Present Perfect, Past Simple or Past Continuous.

I _____ (browse) through the small ads in the local newspaper when I _____ (see) an advertisement for a second hand word processor, so I _____ (decide) to give them a ring to get more information. I _____ (have) a computer but it _____ (not have) enough memory for the project I _____ (work) on at the moment. In most occupations nowadays it _____ (become) useful to be "computer-literate" but in my profession it _____ (become) an absolute necessity. I don't get much pleasure out of sitting in front of a computer screen for hours, but I don't stand much chance of promotion without computer skills. So yesterday I _____ (to make) an appointment to see my bargain computer the next day.

15. Use Past Perfect or Past Simple.

1) We _____ (summarize) the detailed properties with our adviser by the meeting.

2) By the end of the month she _____ (delete) some messages from the server.

3) I _____ (come) a minute late. Eve _____ (design) already a site.

4) Sam couldn't use the machine because it _____ (be) in the rain for some time.

5) He _____ (receive) an e-mail message and _____ (send) it to another address.

6) The information security specialist (want) to know if I ever _____ (have) any problems with anti-virus protection.

7) She _____ (fail) the exam because she _____ (not study) hard enough.

8) He _____ (click) on the icon with the mouse and _____ (get) on the Internet.

16. Grammar revision. Read the text and fill in the gaps choosing appropriate tense forms.

Hannah Jones _____ (gaze) into the future of futurology. People have always wanted to look into the future. I _____ (be) no exception. I _____ (read) my horoscope every day: "When you _____ (get) home on Friday, you _____ (have) a pleasant surprise". I _____ (live) alone and my puppy _____ (not be) house-trained yet, so I hardly ever have a pleasant surprise at home.

This weekend, however we _____ (get) a surprise because hundreds of futurologists _____ (meet) at Newcastle University. The conference _____ (start) on Thursday and the experts _____ (discuss) the impact of technology on the future. Yesterday I _____ (log) on to the conference site and _____ (find) these predictions: The technology already _____ (exist), so very soon all of us _____ (use) our voices to give instructions to computers.

In the next few years we _____ (communicate) with our friends using life-sized video images on large screens in our living-rooms.

By the year 2030, computers _____ (become) more efficient and powerful than the human brain.

By the year 2040, genetic engineering _____ (enable) us to live for at least 150 years.

By the middle of the century, computers, millions of times smarter than us, will have been developed. By the time we _____ (link) our brains with “ultra-smart” computers.

By the end of the century, we _____ (colonize) our solar system and _____ (look) for ways to colonize deep space!

Much more interesting than horoscopes, I _____ (be) sure you _____ (agree)! I already _____ (decide) that I _____ (give up) astrology and (take up) futurology. I’ll be there in Newcastle this weekend. At nine o’clock on Sunday morning I _____ (listen) to the great Duke Wilard talking about the future. If you can’t beat the future, join it!

17. A. Study the following table. Formulate the rule.

	Present Perfect Continuous	Past Perfect Continuous	Future Perfect Continuous
+	I have been V_{ing} He, she, it has been V_{ing} We, you, they have been V_{ing}	had been V_{ing}	will have been V_{ing}
-	I have not been V_{ing} He, she, it has not been V_{ing} We, you, they have not been V_{ing}	had not been V_{ing}	will not have been V_{ing}
?	Have I, we, you, they been V_{ing}? Has he, she, it been V_{ing}?	Had I, he, she, it, we, you, they been V_{ing}?	Will I, he, she, it, we, you, they have been V_{ing}?
	for since all morning (day, year, etc.)	for since	for since
USE			
	- to put emphasis on the duration of an action which started in the past and continues up to the present, especially with time expressions such as for, since, all morning / day / year, etc.; - for an action which started in the past and lasted for some time; the action may have finished or may still be going on, the result of the action is visible in the present; - to express anger, irritation or annoyance.	- to put emphasis on the duration of an action which started and finished in the past before another past action or a stated time in the past, usually with since or for; - for an action which lasted for some time in the past and which result was visible in the past.	-to emphasize the duration of an action up to a certain time in the future.

B. Read the sentences, make them negative and interrogative.

- 1) They have been discussing the situation since the morning.
- 2) The printer has been working in an online mode for half an hour.
- 3) He had been studying the scanner manuals for an hour when I came.
- 4) He has been delivering a lecture about computer programming languages since 9.50.
- 5) They will have been discussing the principles of speech output since the beginning of the conference tomorrow.
- 6) He has been developing these ideas for a long time.
- 7) The students had been translating an article for 20 minutes when the teacher brought dictionaries.
- 8) He had been chattering with his friend in the Skype for some hours when the door bell rang.

18. Open the brackets and use perfect continuous forms.

- 1) Have you seen my bag anywhere? – I _____ (look) for it for ages.
- 2) Helen had black ink on her hands because she _____ (fill) her ink printer cartridge.
- 3) It _____ (rain) for three days now.
- 4) Gregory _____ (work) for hours when we come.
- 5) I'm sorry for keeping you waiting. I _____ (try) to make a telephone call to Rome.
- 6) How long _____ you _____ (wear) glasses?
- 7) The children _____ (look) forward to this holiday for months.
- 8) The radio _____ (play) since 7 a.m. I wish somebody would turn it off.
- 9) By the end of this month they _____ (carry out) a project for a year.
- 10) All the roads were blocked: it _____ (snow) all night long.

19. A. Study the following table.

1. Perfect Simple expresses a completed action and Perfect Continuous expresses an activity over a period, and things that happened during the activity.	<i>I have painted the kitchen and now I'm washing the floor. I have paint in my hair because I have been decorating. I have been translating all day. I have translated three articles.</i>
2. Perfect Simple expresses a permanent state and Perfect Continuous can sometimes express a temporary activity.	<i>I have been living in this flat for the past few months (temporary). I have lived here all my life (permanent).</i>
3. Some verbs have the idea of a long time: wait, work, play, try, learn, rain. They are often found in the Continuous. Others don't have: find, start, buy, die, lose, break, stop and are usually found in the Simple.	<i>I have been waiting for you for a long time. She has lost her copy-book.</i>

B. Read the following situations and make up sentences using the Perfect Tenses. Follow the example: *He began reading the newspaper at 3 o'clock. It is now 5 o'clock, and he is still reading the newspaper. – He has been reading the*

newspaper since 3 o'clock, or for two hours. At 4 o'clock he had been reading the newspaper for an hour. At 6 o'clock he will have been reading the newspaper for 3 hours.

1) I began listening to the wireless at 6 o'clock. It is 7 o'clock now and I am still listening to the wireless. [At 6.30...At 7.00...At 8.00...].

2) They began writing their abstracts at 7 p.m. It is 9 p.m. now and they are still writing their abstracts. [At 7.30...At 9.00 p.m...At 10.00 p.m...].

3) She went to live in Moscow in 2000. It is 2009 now and she is still living in Moscow and will live till 2020. [In 2001...In 2003...In 2019...].

4) He began working at his invention in 1970. It is 2010 now and he is still working at it. [In 1975...In 2010...In 2012...].

5) I began studying at the University in 2008. It is 2010 now and I am still studying there. [In 2009...In 2010...In 2012...].

C. Complete the sentences using the Perfect Simple or the Perfect Continuous Tense.

1) Someone _____ (use) my computer lately.

2) We _____ (learn) English for 6 years.

3) I can't listen to him any more. He _____ (lecture) to us for an hour and a half.

4) We _____ (phone) Mrs. James for half an hour but can't get through.

5) _____ you _____ (phone) Mrs. James? – Sorry, not yet. I'll do it in a minute.

6) Her eyes were red. It was clear she _____ (cry).

7) We _____ (fly) non-stop for four hours before we get to Rome.

8) What she _____ (do) here for so long?

9) Sorry about the mess. I _____ (paint) the house since lunchtime. I _____ (paint) three walls.

10) It _____ (rain) for several days before the wind changed.

11) He _____ (compile) two programs this month.

12) I found a key in our garden. It _____ (fall) out of your pocket.

13) By this time next week, Dr Johnson _____ (work) on this project for a year.

14) Mr. Thompson _____ (wait) for 3 quarters of an hour before the secretary came.

15) Miss Honey _____ (teach) for ten years this summer!

16) Here you are! I _____ (look) for you everywhere!

17) How long _____ you _____ (have) these glasses?

18) James said he _____ (wait) too long, he couldn't wait any longer.

19) By 6 o'clock John _____ (play) on the computer for 5 hours.

20. Translate from Russian into English.

1) Я ожидаю их уже полтора часа, но никто еще не пришел.

- 2) Он уже руководит своим отделом полтора года и многому научился за это время.
- 3) Я жду самолет уже два часа. Но о его задержке объявили только что.
- 4) Его отец работал на IBM уже год, когда вся семья переехала жить в Армонк, штат Нью Йорк.
- 5) Я чувствую запах кофе. Ты что, уже завтракал?
- 6) Ты хорошо знаешь этот город. – Ничего удивительного, я живу здесь с детства.
- 7) К 2015 году вы не жили в этой стране достаточно долго, чтобы принять участие в выборах.
- 8) Я набирал этот текст два часа, а потом нашел его в Интернете.
- 9) Я слышал, в следующем месяце вы выходите на пенсию? Сколько к тому времени вы уже здесь будете работать?
- 10) Мы упорно работали и смогли завершить проект вовремя.

21. Read the text and say what computer-related specialities are mentioned in it.

Careers in the Computer Field

The information technology (IT) sector experienced tremendous growth in the late 20th century. By the early 21st century, computer-related jobs employed millions of people around the world.

Not all computer professionals work directly for a company. Many are independent consultants who are hired to accomplish a specific task and are paid by the hour. A consulting job may last from a few hours to several years.

Systems analysts develop methods for computerizing businesses and scientific centers. Systems analysts improve the efficiency of systems already in use.

Computer-security specialists help to protect the integrity of the huge information banks developed by businesses and governments. Computer security specialist responsibilities include designing and implementing safety measures and data recovery plans, monitoring network activity to identify vulnerable points of access, acting on privacy breaches and malware threats. They also install, configure and upgrade security software (antivirus programs), secure networks through firewalls, password protection and other systems, monitor network activity to identify issues early and communicate them to IT teams, serve as security experts and conduct trainings when needed.

Applications programmers write commercial programs to be used by businesses and other organizations as well as in the home. Systems programmers write the complex programs that control the inner workings of the computer. In the IT department of a large organization, systems programmers are technical experts responsible for the efficient performance of some or all of the computer's system software (operating systems, networks, DBMSs, etc.). In a user organization, systems programmers typically do not write programs, but perform many technical tasks that integrate vendors' software. They also act as technical advisors to systems analysts, application programmers and operations personnel. Many specialty areas exist within the two large groups of applications programmers and systems programmers, such as database programmers and designers of graphical user interfaces.

As more small- and medium-sized businesses have become computerized, they have required more people to operate their systems. Computer operators and systems administrators typically need to handle several types of computers and be familiar with a diversified range of applications and systems software. Companies also need specialists to administer their Web sites.

Other important careers in the IT field include computer scientists, who perform research and teach at universities, and hardware designers and engineers, who work in areas such as microchip and peripheral equipment design. Information-center or database administrators manage the information collections developed by businesses or data banks.

Management careers include that of a data-processing manager, who is responsible for managing the computing needs of a business. At the executive level is the chief information officer (CIO) of a company, who is responsible for the computing needs of an entire corporation.

Various support careers also exist, including technical writing, computer-based training, and operations management, which do not necessarily require extremely technical backgrounds. Graphic artists (especially those familiar with computer-based drawing programs) work with programmers and Web-page designers to create informative and attractive Web sites. Their job is to make the websites and mobile applications they work on a pleasure to use.

22. Express your agreement or disagreement with the following statements.

1) The information technology sector experienced tremendous progress in the late 19th century.

2) Systems analysts design and implement safety measures, install and upgrade security software.

3) Applications programmers write commercial programs to be used by commercial companies.

4) Computer scientists work in areas such as microchip and peripheral equipment design.

5) Systems programmers are technical experts responsible for the effective performance of the computer's system software.

6) Management careers include data-processing managers and chief information officers.

7) Various support careers include technical writing, computer-based training, and require extremely technical backgrounds.

23. Complete the following sentences according to the text.

1) Not all computer professionals work

2) Systems analysts develop

3) Computer-security specialists help

4) Security methods include

5) Systems programmers write

6) Applications programmers write

7) Computer operators and systems administrators typically

8) Computer scientists carry out

9) Hardware designers and engineers develop

- 10) Web-page designers
- 11) The chief information officer is responsible for and a data-processing manager is responsible for

24. Ask your groupmates:

- 1) how many people around the world are engaged in computer-related professions;
- 2) what professions managerial and technical career paths include;
- 3) what he/she would like to work as after graduation from the university;
- 4) what the highest-paid position is in his/her opinion;
- 5) what the most interesting computer-related job is in his/her opinion.

25. Work in pairs. Compare different careers mentioned in the text:

- 1) systems analysts and systems programmers;
- 2) applications programmers and systems programmers;
- 3) data processing managers and chief information officers;
- 4) systems administrators and systems analysts;
- 5) systems administrators and database administrators;
- 6) computer scientists and hardware engineers;
- 7) computer operators and hardware designers.

26. Dwell upon the following statement.

Steve Jobs famously said, “Web designers are artisans and true digital creatives. Design is not just what it looks like and feels like. Design is how it works. The best web designers know that good web design is nearly invisible but utterly delightful. If you love art, beauty, people, fashion, and thinking about how someone lives, day-in-day-out, with one of your creations, then you will excel at web design.”

Do you agree or disagree? Express sensible reasons in a logical manner.

Unit 4

Grammar: Passive Voice

Oral Topic: History of the Computer

Lexical and Grammar Exercises

1. Match the English words and word combinations with their Russian equivalents.

- 1) **string** [striŋ] – струна; строка (символов в тексте); нитка

The first mechanical calculator, a system of strings and moving beads called the abacus, was devised in Babylonia in about 500 BC. When you push the On switch,

one little burst of electricity – only about 3-5 volts – starts a string of events that magically brings to life what would otherwise remain an oversized paperweight.

2) **cog** [kɒɡ] – *выступ (шестерни), зубец (колеса)*

In 1642, French scientist Blaise Pascal invented a calculator made of wheels and cogs.

3) **revolution** [ˌrev(ə)ˈluːʃ(ə)n] – *круговое движение, вращение; тех. оборот*

The wheel spins at 950 revolutions per minute. The disk will make 50 revolutions in one second, meaning that 800 sectors will pass under the read/write head in a second.

4) **notch** [nɒtʃ] – *выемка, метка, зарубка; зазубрина; борозда*

When a units wheel moved one revolution (past 10 notches), it moved the tens wheel one notch; when the tens wheel moved one revolution, it moved the hundreds wheel one notch; and so on.

5) **analytical engine** – *аналитическая машина (механический компьютер Ч. Бэббиджа)*

Babbage's Difference Engine could be modified to perform a variety of calculations, but his Analytical Engine was designed to read instructions in the form of holes in paper cards.

6) **execute** ['eksɪkjʊ:t] – *осуществлять, выполнять, делать; реализовать; доводить до конца*

This program automatically executes the commands once a day. Early computers were not known for their flexibility – the steps that each device executed were built into the control unit as a part of the machine.

7) **collate** [kəˈleɪt] – *критически рассматривать, сравнивать, сопоставлять; располагать, складывать в нужном порядке*

A computer system is used to collate information from across Britain. The information system used to collate these statistics is presumably extensive and costly.

8) **relay** ['riːleɪ], [ri:'leɪ] – *реле; переключатель; релейная связь*

The second relay is connected with the electricity mains line via a motor power-on button. The Mark I, completed in 1944, made heavy use of electronically controlled mechanical relays.

9) **cryptography** [krɪp'tɒgrəfi] – *шифрование, криптография*

Cryptography is the art of protecting information by transforming it (encrypting it) into an unreadable format. The main problem with public-key cryptography is that it is a thousand times slower than symmetric cryptography.

10) **encode** [ɪn'kəʊd] – *кодировать, шифровать*

This type of scanner can encode characters on a page and store them electronically. A transmitter encodes information to travel over a channel through distance and time.

11) **wiring** ['waɪərɪŋ] – *прокладка электрических проводов; электропроводка*

The area of practical application of the systems is rather limited because of difficulties of laying wiring in remote premises. The wiring plan included an Ethernet LAN in the 8th grade room and a campus LAN with connections in all classrooms and offices.

12) **determine** [dɪ'tɜːmɪn] – *определять, решать, устанавливать*

The storage-allocation strategy determines how the storage for names is accessed. Artificial neural networks (ANNs) possess the ability to determine nonlinear relationships.

13) **feasible** [ˈfiːzəbəl] – *реальный, возможный, осуществимый, выполнимый*
Related words: **feasibility** [ˌfiːzəˈbɪləti] – *осуществимость, выполнимость*

Steady advances in digital memory technology are making mass-storage devices technologically feasible and increasingly cost-effective. Providing a big enough ROM to hold the entire operating system so that booting from mass storage would not be necessary is feasible for embedded systems with small operating systems.

2. Give English equivalents for the words in brackets.

1) Powerful computers have made it _____ (возможным) to search through millions of records at great speed.

2) The photocopier will _____ (сложит в нужном порядке) the pages of the report.

3) Computer models help _____ (определить) whether a particular area is likely to flood.

4) A microchip _____ (шифрует) a unique series of numbers that can be detected when activated by a scanning device.

5) Check that the computer _____ (выполняет) your commands.

6) All the _____ (электропроводка) in the house needs to be replaced.

7) Her work is already widely influential in mathematics, with possible future use in _____ (шифровании) and theoretical physics.

8) A character _____ (строка) is a series of characters represented by bits of code and organized into a single variable.

3. Replace by one word.

1) A group of letters, words, or numbers, especially in a computer program. _____

2) A system of wires. _____

3) A progressive motion of a body around an axis. _____

4) To find out or come to a decision about by reasoning, or calculation. _____

5) Capable of being done or carried out; capable of being used successfully. _____

6) To carry out fully. _____

7) To convert (something, such as a body of information) from one system of communication into another. _____

8) The encoding and decoding of messages in secret code. _____

4. Fill in the blanks with the word from the active vocabulary.

1) It is not _____ to have security cameras in every part of the building.

2) Some electricity companies do free visual _____ checks for elderly or disabled people.

3) The app is designed to _____ photos from a smartphone's photo albums and then share them.

4) Quizzes are used to _____ how much material students have learned.

- 5) This motor operates at a speed of 5,000 _____ per minute.
- 6) Companies often use _____ to protect private information.
- 7) A _____ is an electrically operated switch.
- 8) A character _____ is a series of *characters* manipulated as a group.

5. Match the words with similar meaning.

- | | |
|--------------|---------------|
| 1) collate | a) develop |
| 2) execute | b) decide |
| 3) determine | c) calculate |
| 4) encode | d) accumulate |
| 5) devise | e) encrypt |
| 6) count | f) perform |

6. Study the following table. Formulate the rule.

Tense	Active Voice	Passive Voice
<i>Present Simple</i>	$V_1/V_{-(e)s}$	am/is/are+ V_3
<i>Past Simple</i>	V_2	was/were+ V_3
<i>Future Simple</i>	will+ V_1	will+be+ V_3
<i>Present Continuous</i>	am/is/are+ V_{ing}	am/is/are +being+ V_3
<i>Past Continuous</i>	was/were+ V_{ing}	was/were+being+ V_3
<i>Present Perfect</i>	has/have+ V_3	has/have+been+ V_3
<i>Past Perfect</i>	had+ V_3	had+been+ V_3
<i>Future Perfect</i>	will+have+ V_3	will+have+been+ V_3

7. Change the sentences from the active into the passive paying attention to tenses.

To change the sentence from the active into the passive:

- a) the object of the active sentence becomes the subject in the passive sentence;
- b) the active verb remains in the same tense, but changes into a passive form;
- c) the subject becomes the agent, and is either introduced with the preposition *by* or omitted.

active	subject	verb	object
	<i>Mark</i>	<i>developed</i>	<i>an application.</i>
passive	object	verb	agent
	<i>An application</i>	<i>was developed</i>	<i>by Mark.</i>

- 1) Programmers determine the field width by counting characters of the longest data item.
- 2) They are paying little attention to the application they are developing.
- 3) The scientists have used new technologies to upgrade some systems.
- 4) During these interviews the managers gave the programmers the opportunity to define the data needed to support these business processes.

5) The developers often did not catch errors made in the analysis and design phases of a project until the implementation phase.

6) The company will have introduced formalized planning and control mechanisms by the end of the year.

7) The designers will use computer-aided publishing graphics to visualize the pages of books, magazines, and newspapers as they will be making them.

8) They were making efforts to design databases that support many applications instead of just one at a time.

8. Fill in the gaps using the appropriate form of the verb in brackets.

1) The ways we work, play, communicate, and access information radically _____ (reshape) due to the invention and evolution of the PC.

2) Main memory _____ (use) to hold data that _____ (need) in the near future.

3) The first mechanical calculator, a system of strings and moving beads called the abacus, _____ (devise) in Babylonia in about 500 BC.

4) The part of the processor, which controls data transfer between the various input and output devices, _____ (call) the control unit.

5) Microsoft _____ (found) by Bill Gates.

6) By the time you finish reading this sentence, there _____ (be) 219,000 new Facebook posts.

7) The speed and power of supercomputers are almost beyond human comprehension, and their capabilities continually _____ (improve).

8) C language _____ (develop) in the 1970s.

9) While enormous advances _____ (make) in computing technologies over the last decades, there are still many computational problems, both in physics and other sciences, that are much too large to solve on a classical computer.

10) Tape storage still _____ (use) after all these years.

11) In the 1980s at least 100,000 LANs _____ (set up) in laboratories and offices around the world.

12) Keep in mind that the lines between computer types constantly _____ (blur).

13) When you turn on your PC, most of the electricity rushes off to warm up the components that _____ (call on) in a few seconds to send, receive, slice, squeeze, and memorize bits and bytes of data.

14) Most of Charles Babbage's analytical engine actions were to be executed through the use of perforated cards – an adaptation of a method that already _____ (use) to control automatic silk-weaving machines called Jacquard looms.

15) By the 2030s, the Internet _____ (transform) into the Tactile Internet.

16) The first digital computer _____ (build) by the University of Pennsylvania in 1946.

17) Last year more software companies _____ (launch) than ever before.

18) At that time millions of computers _____ (connect) together through the fast-developing Internet and Berners-Lee realised they could share information by exploiting an emerging technology called hypertext.

19) The user can communicate directly with the computer when programs _____ (type in and run).

20) Networks of computers _____ (use) to make information available on a worldwide scale.

21) A lot of creative things _____ (do) with paint software, word processing, desktop publishing systems, and the like.

22) Do I need to stay connected to the Internet while my files _____ (synchronize)?

23) The product _____ (release) for use or for sale after it has passed all its tests and (verify) to meet all its requirements.

24) Since the last few years vigorous efforts _____ (make) to improve the quality of IT education and research.

25) By the close of the 20th century, the role of minicomputers _____ (take) over by PCs and workstations.

26) Traditionally, networks _____ (split) between wide area networks (WANs) and local area networks LANs.

27) Students knew they _____ (watch), but they couldn't resist texting or using social media.

28) The operating system _____ (notify) if the process attempts to execute a privileged instruction.

9. Translate from Russian into English.

1) Эти дисциплины преподаются квалифицированными преподавателями.

2) Эти лекции посещаются многими студентами.

3) Язык программирования С++ был создан в начале 1980-х годов.

4) Требования обычно пишутся не программистами, а людьми, которые находятся в тесном контакте с будущими пользователями программного обеспечения.

5) Оперативная память хранит инструкции и данные, которые обрабатываются процессором.

6) Какой язык программирования используется для написания этой программы?

7) Какие доклады были сделаны на этой конференции?

8) Z3 использовался для расчётов, связанных с конструированием самолётов.

9) Тест был выполнен всеми студентами до того, как прозвенел звонок.

10) Когда вошел декан, в лаборатории проводился эксперимент.

11) В современном мире роботы используются в абсолютно в различных сферах жизни.

12) Компьютер Colossus использовался британскими криптографами, чтобы взломать немецкий военный шифр.

13) Когда все службы будут установлены, вы увидите логотип Windows на экране.

14) Когда вы вставляете данные из буфера обмена в приложение, оно проверяет различные форматы, в которых данные были скопированы.

15) К концу 60-х для моделирования сложных систем был разработан язык программирования Симула-67.

16) После лекции было задано много вопросов.

17) Когда вам нужно получить доступ к информации хранящейся в базе данных, мы используем отчет, который был создан для работы с этой базой данных.

18) Хорошая работа этого прибора гарантируется.

19) Носимые компьютеры – это компьютеры, которые носят на теле.

20) Исследования в области коммуникации проводятся в университете с 2014 года.

21) Когда работа будет окончена, выключите компьютер.

22) В конце 1920-х–1930-х были созданы новые виды вычислительных машин.

10. Look at the title and say what information the text gives. Read the text attentively for the details.

History of the Computer

The first mechanical calculator, a system of strings and moving beads called the abacus, was devised in Babylonia in about 500 BC. The abacus provided the fastest method of calculating until 1642, when French scientist Blaise Pascal invented a calculator made of wheels and cogs. When a units wheel moved one revolution (past 10 notches), it moved the tens wheel one notch; when the tens wheel moved one revolution, it moved the hundreds wheel one notch; and so on. Many scientists and inventors, including Gottfried Wilhelm Leibniz, made improvements on Pascal's mechanical calculator.

The concept of the modern computer was first outlined in 1833 by British mathematician Charles Babbage. His design of an “analytical engine” contained all the necessary elements of a modern computer: input devices, a store (memory), a mill (computing unit), a control unit, and output devices. The design called for more than 50,000 moving parts in a steam-driven machine as large as a locomotive. Most of its actions were to be executed through the use of perforated cards – an adaptation of a method that was already being used to control automatic silk-weaving machines called Jacquard looms. Although Babbage worked on the analytical engine for nearly 40 years, he never completed construction of the full machine.

Herman Hollerith, an American inventor, spent the 1880s developing a calculating machine that counted, collated, and sorted information stored on punched cards. When cards were placed in his machine, they pressed on a series of metal pins that corresponded to the network of potential perforations. When a pin found a hole (punched to represent age, occupation, and so on), it completed an electrical circuit and advanced the count for that category.

In 1896 Hollerith founded the Tabulating Machine Company to produce similar machines. In 1924, the company changed its name to International Business Machines Corporation (IBM). IBM made punch-card office machinery the dominant business information system until the late 1960s.

From 1939 to 1942, American physicists John V. Atanasoff and Clifford Berry built a computer based on the binary numbering system. Their ABC (Atanasoff-Berry Computer) is often credited as the first electronic digital computer. Atanasoff reasoned that binary numbers were better suited to computing than were decimal

numbers because the two digits 1 and 0 could easily be represented by electrical circuits, which were either on or off.

In 1941 German inventor Konrad Zuse produced an operational computer, the Z3, that was used in aircraft and missile design. His computers were destroyed during World War II, but he was able to save a partially completed model, the Z4, whose programs were punched into discarded 35-millimeter movie film.

Harvard mathematician Howard Aiken directed the development of the Harvard Mark I – an electronic computer that used 3,304 electromechanical relays as on-off switches. Completed in 1944, its primary function was to create ballistics tables to make Navy artillery more accurate.

Colossus was one of the machines that British cryptographers used to break secret German military codes. It was developed by a team led by British engineer Tommy Flowers, who completed construction of the first Colossus by late 1943. Messages were encoded as symbols on loops of paper tape, which the 1,500-tube computer read at some 5,000 characters per second.

The distinction as the first general-purpose electronic computer properly belongs to ENIAC (Electronic Numerical Integrator and Computer). Designed by two American engineers, John W. Mauchly and J. Presper Eckert, Jr., ENIAC went into service at the University of Pennsylvania in 1946. Its construction was an enormous feat of engineering – the 30-ton machine was 18 feet (5.5 meters) high and 80 feet (24 meters) long, and contained 17,468 vacuum tubes linked by 500 miles (800 kilometers) of wiring. ENIAC performed about 5,000 additions per second. Its first operational test included calculations that helped determine the feasibility of the hydrogen bomb.

11. Express your agreement or disagreement with the following statements.

- 1) The first mechanical calculator, the abacus, used a system of cogs.
- 2) The concept of the modern computer was first outlined by Blaise Pascal.
- 3) Unlike modern computers, an “analytical engine” contained only a store (memory) and a mill (computing unit).
- 4) An “analytical engine” used perforated cards as input.
- 5) In 1896 Hollerith founded the Tabulating Machine Company, which later changed its name to IBM.
- 6) ABC (Atanasoff-Berry Computer) was based on the binary numbering system.
- 7) Z3 is often credited as the first electronic digital computer.
- 8) The Harvard Mark I used 3,304 electromechanical relays as on-off switches.
- 9) Colossus was one of the machines that German cryptographers used to break secret British military codes.
- 10) ENIAC (Electronic Numerical Integrator and Computer) is the first general-purpose electronic computer.
- 11) ENIAC performed about 1,000 additions per second.

12. Complete the following sentences according to the text.

- 1) The first mechanical calculator used
- 2) Blaise Pascal invented

- 3) Babbage's analytical engine consisted of
- 4) From 1939 to 1942, John V. Atanasoff and Clifford Berry built
- 5) In 1941 Konrad Zuse produced
- 6) Harvard Howard Aiken directed the development of
- 7) Colossus was used by British cryptographers for
- 8) The measurements of ENIAC were
- 9) ENIAC was made up of
- 10) ENIAC could carry out

13. Ask your groupmates:

- 1) how long the abacus provided the fastest method of calculating;
- 2) what operating principle Pascal's calculator had;
- 3) what input Babbage's "analytical engine" had;
- 4) what functions Hollerith's calculating machine performed;
- 5) if Atanasoff and Berry used the decimal numbering system for their ABC;
- 6) what input Colossus used;
- 7) what ENIAC first operational test helped determine.

14. Dwell upon the following statement.

Nicholas Negroponte, the co-founder of the MIT Media Lab, said, "Computing is not about computers anymore. It is about living."

Do you agree or disagree? Do you think people rely too much on computers? Do you consider that the future of human development belongs to the computer? Express sensible reasons in a logical manner.

Unit 5

Grammar: The Sequence of Tenses

Oral Topic: Computer Generations

Lexical and Grammar Exercises

1. Match the English words and word combinations with their Russian equivalents.

- | | |
|------------------------------|----------------------------|
| 1) hardware | a) двоичный |
| 2) software | b) устройство вывода |
| 3) input device | c) перфокарта |
| 4) output device | d) магнитная лента |
| 5) memory and storage device | e) интегральная схема |
| 6) punched card | f) клавиатура |
| 7) magnetic tape | g) переносной, портативный |
| 8) magnetic core | h) устройство ввода |
| 9) binary | i) кремний |

- | | |
|-----------------------------|--|
| 10) assembly language | j) магнитный сердечник |
| 11) integrated circuit | k) программное обеспечение |
| 12) semiconductor | l) аппаратное обеспечение |
| 13) keyboard | m) устройство памяти и хранения информации |
| 14) silicon | n) полупроводник |
| 15) handheld | o) язык ассемблера |
| 16) artificial intelligence | p) распознавание голоса |
| 17) voice recognition | q) применение, приложение |
| 18) application | r) искусственный интеллект |

2. Match the words with similar meaning.

- | | |
|-----------------------|-------------------|
| 1) to input | a) to carry out |
| 2) to develop | b) mighty |
| 3) instruction | c) to enter |
| 4) to perform | d) to communicate |
| 5) to interact | e) to invent |
| 6) to come into being | f) program |
| 7) powerful | g) to appear |

3. Match the words with opposite meaning.

- | | |
|----------------|------------------|
| 1) fast | a) sophisticated |
| 2) simple | b) ineffective |
| 3) to input | c) slow |
| 4) efficient | d) to reduce |
| 5) to increase | e) to output |

4. Give English equivalents for the words in brackets.

1) With the fifth generation of computing we have PCs as powerful as mainframes and (программное обеспечение) _____ that (выполняет) _____ certain thinking functions only our brains could do.

2) (Операционные системы) _____ made it easier for (пользователей) _____ to work with computers by creating a more friendly (пользовательский интерфейс) _____.

3) It was during the second generation that the first (световое перо) _____ was used as an (устройство ввода) _____ for drawing on the surface of the monitor.

4) Two of the most significant (приложений) _____ of the third generation were networking communications and (обработка текста с помощью текстовых процессоров) _____.

5) The (электронная таблица) _____ was a new and original application for the (ПК) _____, as was desktop publishing.

6) Fourth-generation languages are commonly used with a (системой управления базами данных) _____, on all classes of computers.

5. Replace by one word from the box.

spreadsheets / an application / the central processing unit / a mouse /
a touch screen / a light pen / an operating system / an integrated circuit

- 1) The computer's main processing device, often referred to as the "brains" of the computer. _____
- 2) A pen-shaped device that uses a laser beam to transmit signals to the CPU by writing on the screen. _____
- 3) This device replaced the thousands of vacuum tubes required in earlier computers. _____
- 4) Computer programs in which data is displayed in columns and rows. _____
- 5) Software used to monitor, or supervise, the overall operations of the computer system. _____
- 6) An input device used to move the cursor around the screen and to point to and select the various options that are available. _____
- 7) A monitor screen that can detect and respond to something, such as a finger or stylus, pressing on it. _____
- 8) A program or piece of software designed and written to fulfill a particular purpose of the user. _____

6. Fill in the blanks with the most suitable words.

- 1) _____ are periods based on different types of circuitry, memory and storage, I/O devices.
- 2) _____ include mice, keyboards, scanners, light pens.
- 3) Computers of different time periods used vacuum tubes, transistors and _____.
- 4) Programming languages are divided into low-level and _____ languages.
- 5) Monitors, printers belong to _____.
- 6) Users interact with computers by means of keyboards and monitors, and interface with an _____.

7. A. Study the following tables.

Sequence of tenses. Direct and Indirect (Reported) Speech.

Direct Speech		Reported Speech	
Present Simple	V, Vs	Past Simple	Ved/ V₂
Past Simple	Ved/ V₂	Past Perfect	had Ved / V₃
Future Simple	will V	Future Simple in the Past	would V
Present Continuous	am/is/are V_{ing}	Past Continuous	was/were V_{ing}
Past Continuous	was/were V_{ing}	Past Continuous / Past Perfect Continuous	was/were V_{ing} / had been V_{ing}
Future Continuous	will be V_{ing}	Future Continuous in the Past	would be V_{ing}
Present Perfect	have/has Ved / V₃	Past Perfect	had Ved / V₃
Past Perfect	had Ved / V₃	Past Perfect	had Ved / V₃
Future Perfect	will have Ved / V₃	Future Perfect in the Past	would have Ved / V₃

Present Perfect Cont. have/has been V_{ing}	Past Perfect Continuous had been V_{ing}
Past Perfect Continuous had been V_{ing}	Past Perfect Continuous had been V_{ing}
Future Perfect Continuous will have been V_{ing}	Future Perfect Continuous in the Past would have been V_{ing}

<i>Direct Speech</i>	<i>Indirect Speech</i>
Personal pronouns (I, you, he, she, it, we, they)	
Possessive pronouns (my, your, his, her, our, their)	change according to the context.
Demonstrative pronouns and adverbs of time:	
this <i>этот</i>	that <i>тот</i>
these <i>эти</i>	those <i>те</i>
here <i>здесь</i>	there <i>там</i>
now <i>сейчас</i>	then <i>тогда, at that time</i> <i>в то время</i>
ago <i>тому назад</i>	before <i>до того, раньше</i>
today <i>сегодня</i>	that day <i>в тот день</i>
yesterday <i>вчера</i>	the day before, on the previous day <i>накануне</i>
tomorrow <i>завтра</i>	the next day <i>на следующий день</i>
last night <i>вчера вечером</i>	the previous night <i>накануне вечером</i>
next day <i>на следующий день</i>	the following day, the next day, the day after <i>на следующий день</i>
the day after tomorrow <i>послезавтра</i>	two days later <i>через два дня</i>
the day before yesterday <i>позавчера</i>	two days before <i>двумя днями ранее</i>

B. Choose the most appropriate answer.

- 1) I knew that she ... Madrid before, so I asked her to recommend a good hotel.
a) has visited b) has been visiting c) visited d) had visited
- 2) She promised to help me if I ... the answer myself.
a) haven't found b) didn't find c) won't find d) wouldn't find
- 3) He said that they ... each other for many years.
a) know b) have known c) knew d) had known
- 4) I saw that she ... to hold back her tears.
a) tries b) didn't find c) is trying d) was trying
- 5) He knew that she ... as her eyes were red.
a) is crying b) has been crying c) was crying d) had been crying
- 6) I asked her whether she ... there with me, but she said no.
a) goes b) is going c) will go d) would go
- 7) She said that the robber ... her when she was opening the door to her apartment.
a) attacked b) has attacked c) was attacking d) had attacked
- 8) I wanted to see her but I didn't know if she ... in town.
a) is b) was c) were d) had been
- 9) He told me that he would visit them when he ... from Spain.
a) has returned b) returned c) will return d) would return
- 10) My younger daughter learned in class yesterday that the Earth ... around the Sun.
a) revolves b) is revolving c) revolved d) was revolving

8. Study the following table.

<p>We can report: A. Statements B. Questions C. Commands, requests, suggestions</p>	
<p>A. Reported statements</p>	
<p>1. To report statements we use a reporting verb (say, tell, explain etc.) followed by a that-clause. In spoken English <i>that</i> can be omitted. 2. Pronouns and possessive adjectives change according to the context. 3. There are no changes in verb tenses when the verb in the main clause is in the Present, Future Simple or Present Perfect tense or when the sentences express something which is always true. <i>He says, "I'll do it at once". - He says he'll do it at once.</i> <i>"The earth is round", said the teacher. - We were taught at school that the earth is round.</i> 4. The Past Progressive and Past Perfect don't usually change. <i>She had made a back-up copy. - He said she had made a back-up copy.</i> 5. Certain modal verbs change as follows: will/shall - would can - could (present), would be able to (future) may - might shall - should (asking for advice), would (asking for information) must - must (possibility or deduction) must - had to (obligation) 6. "Would, could, used to, mustn't, should, might, ought to and had better" remain the same. 7. There is no shift of tenses if the action refers to a definite past moment which may be indicated by an exact date or hour. <i>I was born in 1987. Linda said that she was born in 1987.</i> 8. The verb tenses can change or remain the same in reported speech when a sentence expresses something which is up to date or still true. However, the verb tenses usually change when something is not true or out of date: <i>I am an application programmer. He said that he is/was an application programmer.</i> <i>I like programming. He said he liked programming(but we know he doesn't, not true).</i> <i>"Tom is leaving tomorrow," she said. – She said that Tom was leaving the next day. (speech reported after Tom had left). She said that Tom is leaving tomorrow. (speech reported before Tom has left)</i></p>	
<p><i>He says, "I usually buy a pre-paid charge card for small purchases".</i> <i>He says, "I'll lend you my camera".</i></p>	<p><i>He says (that) he usually buys a pre-paid charge card for small purchases.</i> <i>He says he will lend me his camera.</i></p>
<p>B. Reported Commands/Requests/Suggestions</p>	
<p>To report commands, requests, suggestions etc. we use a reporting verb (advise, ask, suggest ,beg, order, tell etc.) followed by a to-infinitive, a not to-infinitive or an- ing form (after suggest).</p>	
<p><i>He says to me, "Avoid phoning in peak times".</i> <i>He says to me, "Don't give your password to anybody".</i> <i>He says, "Let's reinstall the sound drivers".</i></p>	<p><i>He advises (asks, tells, recommends) me to avoid phoning in peak times.</i> <i>He asks (tells, orders, recommends) me not to give my password to anybody.</i> <i>He suggests reinstalling the sound drivers.</i></p>

C. Reported Questions

In Reported Questions we use affirmative word order and the question mark is omitted. To report a question we use:

- a) ask + WH-word (who, what etc.) when the direct question begins with such a word
- b) ask + if/whether when the direct question begins with an auxiliary verb (do, has, can etc.)
- c) do, does, did in reported questions are omitted.
- d) Pronouns, possessive adjectives change according to the context.

<i>He says, "Do you work for this company?"</i> <i>He says, "What site did you use?"</i>	<i>He asks if/whether I work for this company.</i> <i>He asks what site I used.</i>
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Indirect questions are different from Reported questions. We use Indirect questions when we ask for information, whereas we use Reported questions to report someone else's questions. Indirect questions are introduced with
 Could you tell me ...? / Do you know ...? / I wonder ... / I want to know ...
 and their verb is in the affirmative.

Direct questions	Reported questions	Indirect questions
<i>He asks me, "Did they use Linux?"</i> <i>He asks me, "What does data encryption provide?"</i>	<i>He asks me if they used Linux.</i> <i>He asks me what data encryption provides.</i>	<i>He wonders if they used Linux.</i> <i>He wants to know what data encryption provides.</i>

a) Turn the following passage about Ralph, an ex-hacker, into Indirect speech. Use the reporting verbs (say, tell, explain, add etc.) in the Past Simple.

"... I was arrested in the 1990s for hacking into a large American company. I got into the CEO's personal files and left a very rude message. Now I am a computer security expert and I use my skills to make cyberspace safer. Hacking means getting into computer systems you don't have permission to get into. There are various ways of doing it. First you can try to guess somebody's password. Or you find a bug in a computer system and get in. Sometimes it is very simple. If that doesn't work, you try to connect to it over the Internet. And normally that's not very difficult. If you want to avoid being hacked into, you have to keep ahead of the hackers. You can install firewalls to restrict access to a network. You can have a callback system. And finally, you should have really secure passwords. I hope you won't use a common name or a dictionary word or anything short. Checking the system regularly also helps."

b) David is a computing support officer. He is giving a user advice about the problem. Report his commands using reporting verbs in the Past Simple.

- 1) Give me the service tag number.
- 2) Wait a moment.
- 3) Describe what the problem is.
- 4) Don't be in a hurry.
- 5) Try reinstalling the sound drivers.

- 6) Contact us again if that doesn't cure the problem.
- 7) Quote this job number. It's E83095. And tell me your name, please.
- 8) Don't switch off without closing your PC.
- 9) Don't forget to keep in touch with us if there's still a problem.

c) Turn the following questions into Reported or Indirect questions. Begin with the words: I ask ... She asks ... Could you tell me ...? Do you know ...? I wonder ... The teacher would like to know ...

- 1) What does Louise do with clipart?
- 2) What is the difficulty in selling through a website?
- 3) How many sites have you found?
- 4) What can medical expert systems do?
- 5) How fast is the processor?
- 6) Does data flow from ROM to the CPU?
- 7) How do digital cameras differ from conventional cameras? How do they work?
- 8) What is a pixel?
- 9) Is special software required?
- 10) What does the capacity of a digital camera depend on?
- 11) What method of software distribution will replace optical disks?
- 12) Why did he choose to do his diploma in support?
- 13) What was the problem with the program?
- 14) Who taught you Maths?
- 15) Whose classes did you most enjoy?
- 16) What are the main functions of an operating system?
- 17) What is "My Briefcase" for?
- 18) How do you delete files permanently?
- 19) Can computers communicate with synthesizers?
- 20) Is there an image on the screen?

9. The following sentences contain present tense verbs in the main clause. Change the main clause to the past and transform the dependent clause as necessary.

Example: We hope that he will be able to attend. – We hoped that he would be able to attend.

- 1) He says that he will finish the project in May.
- 2) Mark thinks that the lecture is going to start at 9 o'clock.
- 3) I hear that Kate has accepted a new position at Microsoft.
- 4) Mary tells her friends that they are good programmers.
- 5) The student is asking the professor when the class will do the next experiment.
- 6) The corporation announces that the new computer can be used for other than academic or military purposes.
- 7) He adds that all these inventions paved the way for the birth of the electronic digital computer.

8) He explains that this new computer can do unprecedented number of additions per second.

10. Report what the students said when they read the newspaper article.

1) (Bill). Scientists from Russia and the United States have had direct computer linkage for about 5 years.

2) (Tony). Computer connections have fostered scientific collaborations.

3) (Ann). The new network should strengthen the collaborations between these countries.

4) (Lucy). The fiber optic connection between Russia and China was completed a few months ago.

5) (Rob). Soon, scientists in the United States, China and Russia will be able to collaborate in cyberspace over a new high-speed computer network.

6) (Paul). Today, market players, especially small ones, are moving to the web.

7) (Dan). The vast majority of brokers have their own web based trading system.

8) (Tina). After you sign an agreement you will receive a login and password and get a PIN or a flash drive with an electronic key.

9) (Jim). The broker will lower his commission if a client submits his orders through the Internet.

11. Choose a reporting verb and turn the following from Direct into Reported speech. Use the following verbs: advised, asked, wondered, ordered, suggested, explained, warned, promised, begged, offered, refused, told.

1) "I think you should reboot your PC," the computing support officer said to me.

2) "I will not tell you my password," the young man said to the stranger.

3) "I really will make full backups", he said.

4) "Do you know where he has sent the message?" she said to him.

5) "What have you done to send a secure message?" the boy said to his friend.

6) "Encrypt the message with the recipient's public key", the teacher said to his assistant.

7) "We will pay for your courses with the training company", his boss said.

8) "Would you like me to help you convert data to a secret code?" he said to her.

9) "Let's make the picture on your monitor wider", she said.

10) "In 1642 Blaise Pascal invented an automatic desktop machine", the lecturer said to the students.

11) "Don't use a common name or a dictionary word or anything short for your password", the tutor said to the students.

12) "Let's make the print size larger", said Tim.

13) "Let me find some information about safe data transfer, please", she said to her fellow students.

14) "I promise I'll e-mail you as soon as I arrive", said Bill.

15) "Don't punish me for using your computer, please," the child said to his parents.

16) "The computer microchip was invented in 1958", the teacher explained.

12. Change the following into indirect questions beginning with the words given.

- 1) Can I buy a really up-to-date encyclopedia? The boy asked....
- 2) Where were you yesterday? She asked him....
- 3) They are interviewing a computer science graduate now, aren't they? She wanted to know....
- 4) What problem is there with the existing system? I didn't know....
- 5) Who will use the new system this week? I didn't know....
- 6) What is the next step? She wondered....
- 7) Did you test the program last night? She asked him....
- 8) Why is he trying to get help at the computer information center? Bill wanted to know....
- 9) Are they going to code the program or not? Did you know....
- 10) Had he clarified the problem before he designed the solution? I doubted....
- 11) How do you write programmer documentation? She wondered....
- 12) Were there any techniques for achieving this? They wondered....
- 13) Was the author trying out the new graphics package? She asked....
- 14) How long have you been practising for your exam? My mother wondered....

13. Turn the following sentences into Reported speech.

- 1) "How shall I clarify the objectives?" he said. (advice)
- 2) "You mustn't make unauthorized copies of software", she said. (prohibition)
- 3) "Can I work for only a few days or a week for a company?" he asked him.
- 4) "You must be interested in your subject", they added. (obligation)
- 5) "You may buy books on languages such as C ++", he said.
- 6) "You should be able to break down a problem into a number of smaller tasks", he said to her.
- 7) "When shall we start our training course?" she asked us. (information)
- 8) "How shall I do this?"(advice)
- 9) "He is an IT manager so he must have a first degree if not a second one", she said to him. (deduction)
- 10) "You must upgrade your certification to stay current", he said. (obligation)

14. Look at the title and say what information the text gives. Read the text attentively for the details.

Computer generations

The first computers (1940–1956) used vacuum tubes for circuitry and magnetic drums for memory. The first-generation computers (1940–1958) were quite slow performing an average of 39,000 operations per second. They relied on machine language to perform operations, solved one problem at a time. Input was based on punched cards and paper tape, output was displayed on printouts. A typical application during this time was tabulating, or organizing data into tables (that we now term a spreadsheet).

The second-generation computers (1956-1963) based on transistors invented in 1947 by American physicists John Bardeen, Walter Brattain, and William Shockley, moved from cryptic binary machine language to symbolic, or assembly, languages. High-level programming languages (COBOL and FORTRAN) were also being developed at this time. Computers stored their instructions in memory based on magnetic core technology developed in 1948 by An Wang, an engineer at the Harvard Computation Laboratory. The second-generation computers utilized keyboards and video display monitors. It was during this period that the first light pen was used as an input device for drawing on the surface of the monitor. High-speed printers also came into use. Magnetic tape was developed in the early 1950s for audio recording, and was adapted to computers as a storage medium for programs and data. There were also great advances in auxiliary storage, led by the hard disk drive. The most significant application software developed during this time was records management. Computers could process 200,000 instructions per second.

Kilby's development of the integrated circuit was the mark of the third generation (1964–1971) of computers. Transistors were miniaturized and placed on silicon chips called semiconductors. Users interacted with computers through keyboards and monitors and interfaced with an operating system. Many high-level programming languages were developed during the third generation, among them BASIC and Pascal. Two of the most significant applications of the third generation were networking communications and word processing. By 1971, computers were able to process nearly 1 million instructions per second.

The microprocessor brought the fourth generation (1971–1982), as the Intel 4004 chip located all the components of the computer – from the central processing unit and memory to input/output controls – on a single silicon chip. Large-scale integration, a technique for packing more and more circuitry on a single chip, gave us microprocessors as powerful as an entire mainframe computer. The fourth generation added a brand new category of machine: the microcomputer or personal computer. The Internet was developed. GUIs, the mouse and handheld devices were also invented. The fourth-generation languages are commonly used with a database management system program, on all classes of computers. The fourth generation also saw the development of new languages for artificial intelligence, including Prolog. The spreadsheet was a new and original application for the personal computer, as was desktop publishing. By the late 1980s processing speed increased to 4.77 MIPS.

The fifth generation (1983–present and beyond) computing devices, based on artificial intelligence, are still in development, though there are some applications, such as touch screen technology, voice recognition, quantum computation, molecular and nanotechnology that are being used now. The fifth generation computers can process at least 33 million instructions per second or even more. The fifth generation will bring us intelligent interfaces that learn to respond to our personal workstyle or lifestyle. The goal of the fifth-generation computing is to develop devices that respond to natural language input and are capable of learning and self-organization.

15. Express your agreement or disagreement with the following statements.

- 1) The first generation computers used transistors for circuitry.
- 2) The second generation computers moved to assembly languages.
- 3) COBOL and FORTRAN are high-level programming languages.
- 4) Users interacted with the third generation computers by means of keyboards and monitors.
- 5) The fourth generation of computers was marked by placing all computer elements on a single chip.
- 6) The fifth generation computing devices are based on artificial intelligence.

16. Complete the following sentences according to the text.

- 1) Transistors were invented in 1947 by American physicists
- 2) Magnetic core technology was developed in 1948 by
- 3) Magnetic tape was developed in the early 1950s for
- 4) The mark of the third generation computers development was
- 5) Many high-level programming languages were developed during the
- 6) The fourth generation added a brand new category of machine and new languages for
- 7) The goal of the fifth-generation computing is
- 8) The processing speed increased from in the first generation, to in the second one, to in the third one, to In the fourth one and to In the fifth one.
- 9) The evolution of I/O devices can be represented as follows
- 10) Memory and storage devices evolved from to
- 11) The first generation computers used ... for circuitry, the second generation computers were based on The third generation computers used ... for circuitry, the fourth generation computers were based on

17. Ask your groupmates:

- 1) what they know about the first generation computers;
- 2) what technology was used for memory and storage in the late 50s;
- 3) when the hard disk drive was invented;
- 4) when BASIC and PASCAL were invented;
- 5) what fifth generation developments are being used now.

18. Characterise each generation according to the following plan:

- 1) time period;
- 2) type of computers;
- 3) circuit technology;
- 4) memory and storage devices;
- 5) input / output devices;
- 6) programming languages;
- 7) software applications.

19. Choose a device to denote each computer generation. To your mind, what devices is the classification of computer generations based on? Why do some scientists state that there are only 4 computer generations? Express sensible reasons in a logical manner.

Unit 6

Grammar: Conditionals
Oral Topic: Virtual Reality

Lexical and Grammar Exercises

1. Read the following words. Translate the sentences into Russian. Learn the words by heart.

1) **immerse** [ɪ'mɜ:s] – *сильно увлекаться, заходить далеко, погрязать*
Related words: immersion [ɪ'mɜ:ʃ(ə)n] – *погружение (в какое-л. дело), сильное увлечение (чем-л.)*

Total immersion in a videogame is almost like living another life. For the virtual reality to be effective, people must feel immersed in it.

2) **manipulate** [mə'nɪpjəleɪt] – *умело обращаться; умело управлять (чем-л.)*

Related words: manipulation [mə'nɪpjə'leɪʃ(ə)n] – *манипуляция; обращение*

Data processing refers to a class of programs that organize and manipulate data, usually large amounts of numeric data. Virtual reality programs let people manipulate objects in that world.

3) **derive** (from) [dɪ'raɪv] – *получать, извлекать; выводить, происходить*

Children derive great pleasure from computer games. Given enough data and enough time, a computer can derive the rules of the game and calculate the best moves without being taught anything.

4) **reflect** [rɪ'flekt] – *отражать, воспроизводить, свидетельствовать (о чём-л.)*

The user's physical actions are immediately and realistically reflected on the computer's display. The structure of the Web site reflects the way the data are structured and maintained in the organization.

5) **controller** [kən'trəulə] – *контроллер; рычаг управления; система управления*

Some programs require people to use special controllers. Audio controller is built into the motherboard and leads to one or two built-in speakers.

6) **sophisticated** [sə'fɪstɪkeɪtɪd] – *сложный, сложно устроенный; современный; продвинутый (о пользователе)*

As computers become more efficient and artificial intelligence programs become more sophisticated, robots will be able to perform more difficult and more humanlike tasks. Page description language (PDL) is a software language used with printers to control sophisticated print jobs.

7) **means** [mi:nz] – *способ, метод; возможность*

E-mail has become an increasingly important means of business communication. Information and communication technologies (ICTs) are important means of communication.

8) **feed** [fi:d] – *вводить, подавать; снабжать*

This feeds the paper through to the printer. The images are fed over satellite networks to broadcasters throughout the world.

9) **consistent** [kən'sist(ə)nt] – *последовательный, стойкий; устойчивый, совместимый, согласующийся*

A color management system is a set of tools that permits consistent and predictable color reproduction. Risk Analysis and Management Methodology was developed with the aim of providing a structured and consistent approach to computer security management for all systems.

10) **rotate** [rəu'teɪt] – *вращаться, вращать; чередоваться*

A trackball is simply a mouse mounted so the ball is rotated with your fingers instead of on the surface of your desk. The operations available within most arithmetic/logic units allow the contents of registers to be moved to the right or the left within the register, these operations are known as either SHIFT or ROTATE operations.

2. Match the English word combinations with their Russian equivalents.

- | | |
|----------------------------------|---|
| 1) flight simulator | a) встроенные правила |
| 2) real-world data | b) ножные педали, педали контроля |
| 3) built-in rules | c) реальные данные |
| 4) alternate reality | d) наушники |
| 5) headphones | e) шлем-дисплей |
| 6) foot pedal | f) авиасимулятор |
| 7) head-mounted display | g) дополнительная/альтернативная реальность |
| 8) manufacturing processes | h) автоматизация проектирования электронных устройств |
| 9) Electronic Design Automation | i) градостроительное проектирование |
| 10) Computer Aided Design | j) обучение анатомии |
| 11) Computer Aided Manufacturing | k) производственные процессы |
| 12) anatomy instruction | l) система автоматизированного производства |
| 13) urban planning | m) компьютерное проектирование |

3. Give English equivalents for the words in brackets.

1) She got some books out of the library and _____ (погрузилась) herself in British history and culture.

2) Players _____ (управляют) characters on the screen using a joystick.

3) Application Programming Interfaces (APIs) are programming tools that provide developers with a simple, _____ (устойчивый) mechanism for extending the functionality of an application.

4) Web sites main function was to provide _____ (возможность) of gathering and sharing information.

5) The software allows you _____ (вращать) images.

6) Although a computer bug is associated with faulty software, the term _____ (получил) its name from the bug found in a computer's mechanical relay, causing it to malfunction.

7) Human attempts to create tools to _____ (управлять) data date back at least as far as 2600 B.C.

8) When the display _____ (контроллер) wants a particular pixel to glow, it opens the address line that leads to that pixel's cell.

9) The fastest processors are limited by how fast memory _____ (подает) them data.

10) The _____ (современные) mobile phones are commonly equipped with PDA-functionalities such as a large screen and easier methods of input.

4. Replace by one word.

1) In the context of virtual reality, the term is used to describe the users' emotional reaction to the virtual world in terms of feeling as if they are actually a part of the virtual world. _____

2) To move or turn around a central fixed point. _____

3) A device that controls or regulates a machine or part of a machine. _____

4) To put or push something into or through a machine. _____

5) Highly complicated or developed. _____

6) Always behaving or happening in a similar, especially positive, way. _____

7) To work skilfully with information, systems etc. to achieve the result that you want. _____

5. Fill in the blanks with the word from the active vocabulary.

1) She _____ herself in her work.

2) The technology uses a pen to _____ a computer.

3) Pixel is _____ from "picture element" – the smallest unit of a computer display.

4) The software grows more _____ over time.

5) The Internet is seen by many as an individual _____ for obtaining or sending information flexibly and efficiently.

6) The microprocessor or central processing unit (CPU) is a tight, complex collection of transistors arranged so that they can be used to _____ data.

7) Position sensors attached to each axis of the joystick respond to the joystick's X-Y coordinates and send signals to the game adapter card that the software uses to interpret the position of the game _____.

8) _____ the wheel through 180 degrees.

9) No matter what kind of data you _____ into a computer, the PC ultimately sees it only as numbers, strings of zeros and ones written with transistors in the microchips of your motherboard.

10) The Web site was used as a method of ensuring that communication is kept _____ and constantly available.

6. Study the following table. Formulate the rule.

	if-clause	main clause	use
Type 1 Conditionals (real present)	if + any present form	will/can/may/must + bare infinitive Present Simple	true or likely to happen in the present or the future
Type 2 Conditionals (unreal present)	if + Past Simple or Past Continuous	would/could/might + bare infinitive	untrue in the present; used to give advice
Type 3 Conditionals (unreal past)	if + Past Perfect or Past Perfect Continuous	would/could/might + have + Past Participle	imaginary situation contrary to facts in the past; used to express regrets or criticism

Ex: **If I do** this work on a computer, it **will take** me less time. (*true – it's possible*)
If I did this work on a computer, it **would take** me less time. (*untrue in the present. I don't have a computer.*)
If I had done this work on a computer, it **would have taken** me less time. (*imaginary in the past – I didn't have a computer, so I didn't do this work.*)

In written English after "if" we normally use were instead of was in all persons in type 2 conditionals.

Ex: **If I were** you, I **would send** her an e-mail message.

We can omit "if". When we omit "if", were and had come before the subject.

Ex: **If I were you**, ... □ **Were I you**, ...

If we had known, ... □ **Had we known**, ...

All types of conditionals can be **mixed**. Any tense combination is possible if the context permits it.

	If-clause	main clause	
Type 2	If they were playing all day, (they were playing all day)	they will be tired out now. (so they are tired out now)	Type 1
Type 2	If I were you, (you are not me)	I would have invited her. (so you didn't invite her)	Type 3
Type 3	If you had saved money, (you didn't save money)	you would be going on holiday. (so you are not going on holiday)	Type 2

7. Choose the correct answer (if-clause).

- If you ... a programmer, you will open up the computer world.
 - becomes
 - become
 - will become
 - would become
- If we ... the system analyst, he would help to facilitate the process.
 - invited
 - invite
 - will invite
 - would invite
- If he ... the conference on Cybernetic Analyses, he would have learnt about large-scale computers.
 - attended
 - attend
 - would attend
 - had attended
- If they ... this equipment, they will run their affairs more effectively.
 - will use
 - use
 - uses
 - would use
- Supposing something ... wrong, the computer operator will signal you.

- a) goes b) will go c) would go d) go
- 6) If you ... access to Internet, you would do this work easily.
a) have b) had c) will have d) would have
- 7) If he ... the program, it would have run properly.
a) had debugged b) debugs c) debugged d) would debug

8. Choose the correct answer (the main clause).

- 1) If you follow his explanations, you ... a good system analyst.
a) will become b) became c) would become d) become
- 2) If you stored this information on a flash drive, you ... to use it easily.
a) are able b) would be able c) were able d) will be able
- 3) If I were you, I ... English better.
a) learn b) would learn c) will learn d) learned
- 4) If you had studied better, you ... the University.
a) entered b) would entered c) had entered d) would have entered
- 5) If she had had better knowledge of maths, she ... that problem.
a) can solve b) could solve c) will be able to solve d) could have solved
- 6) If he had known the results beforehand, he ... the research.
a) never started b) has never started
c) would never started d) would have never started
- 7) If the cable fails, the whole network ...
a) fails b) would fail c) will fail d) failed

9. Put the verbs in brackets in the correct form.

- 1) You could become a programmer if you _____ (be) good at maths.
- 2) If people _____ (see) that they can make money from the Internet, commercial use of it _____ (increase).
- 3) If you send an e-mail message, it _____ (travel) through many different networks and computers.
- 4) If you _____ (learn) about interactive information processing, you would have understood learning information systems.
- 5) If commercial users communicated over the Internet, they _____ (do) it very cheaply.
- 6) Unless there _____ (be) a good reason for it, people _____ (not want) to change because computers already do most things they want.
- 7) If you just hit Enter, that _____ (activate) the program.
- 8) If you had brought your cursor down to the very bottom, you _____ (find) the Start button.
- 9) If virtual reality technology _____ (be) more affordable at present time, many people would be able to try it.
- 10) If you bring _____ your digital video camera, we _____ (be able to) make a movie on my PC.
- 11) You won't be able to play these video files if you _____ (not have) the correct plug-in.
- 12) If the marketing manager _____ (have) PowerPoint, she could have made more effective presentations.

- 13) If I could afford it, I _____ (buy) a new game console.
 14) If I had the money, I _____ (invest) in some new multimedia software.

10. Rewrite the following omitting “if”.

Model: If you have a virus, it will corrupt your files. – Should you have a virus, it will corrupt your files.

- 1) If you have chosen a complex password, nobody would have accessed your files.
- 2) If I were you, I would back up my files regularly not to lose them.
- 3) If you give your files meaningful names, you won't forget what they contain.
- 4) If you switch on Caps Lock, you'll get all capital letters.

11. Paraphrase the following using “unless”. Remember that after “unless” the verb is never negative.

- 1) If you don't use the right password, you won't get access to the network.
- 2) A computer cannot do anything if a person doesn't tell it what to do.
- 3) A computer can't store or handle any data if it doesn't receive information to do so.
- 4) The copying process doesn't begin if the OK button isn't clicked.
- 5) You cannot save a file if you don't name it.

12. Link these statements using the appropriate type of Conditionals.

- 1) You place a floppy disk near a magnet. You destroy the data.
- 2) You store data in RAM. It is not lost when you switch off.
- 3) You input the wrong password. You don't have access to the network.
- 4) You moved a CD-ROM drive with the disk in place. You damaged the drive.
- 5) There was a memory fault. The computer hang.
- 6) You use a faster modem. It runs faster.

13. Describe the effects of these actions. Link these pairs using if-sentences.

- 1) There was a power cut while you were using your computer. You lost all the data.
- 2) You install a faster processor. The computer runs faster.
- 3) You forgot your password. You didn't get access to the network.
- 4) You press the “delete” key. You delete the data.
- 5) You use power-saving options. You save computer resources.
- 6) You have a virus. It corrupts your files.

14. Match the parts of the sentences, using different types of conditionals.

1) you press Print Screen	a) you would find more relevant results
2) you added more memory	b) you would be able to connect to a telephone

	line
3) you installed a modem	c) it would speed up the computer
4) you used a better search engine	d) you may lose data
5) you forget to save regularly	e) you would have more space at your disk
6) you used an LCD display	f) you can make a copy of the screen

15. There is one mistake in each of the following sentences. Find and correct it.

7) If virtual reality technology would be more affordable at present time, many people would be able to try it.

8) Company executives are afraid of the bad publicity that would result if the public would find out that their computer had been misused.

9) If I had to make a choice, my favorite site will be the Internet Movie Database.

10) If I am you, I would work on this design more thoroughly.

11) I can hardly keep my eyes open. If I went to bed earlier last night, I wouldn't be so tired now.

16. Study the following table. Formulate the rule.

Wishes		
	FORM	USE
I wish (if only) (wish/regret about the present)	+ past simple/past continuous	wish/regret about the present (situation we want to be different)
I wish (if only) (regret about the past)	+ past perfect	regret that something happened or didn't happen in the past
I wish (if only) (impossible wish for a future change)	+ subject + would + bare infinitive (<i>wish</i> and <i>would</i> should have different subjects)	wish for a future change unlikely to happen; wish to express dissatisfaction; polite request implying dissatisfaction or lack of hope
<p>After "I wish" we can use "were" instead of "was" for all persons. "If only" means the same as "I wish" but it is more dramatic. Ex.: <i>I wish you worked more efficiently. (It's a pity you don't do it.)</i> <i>I wish I could have such a computer. (But I don't have it.)</i> <i>I wish I had attended the seminar last Monday. (But I didn't.)</i> <i>I wish he would drive more carefully. (But I don't think he will.– wish for a future change unlikely to happen.)</i> <i>I wish it would stop raining. (But I'm afraid it won't stop raining.– wish implying disappointment or lack of hope)</i></p>		
More about the Subjunctive Mood		
	FORM	USE
it is necessary it is required it is demanded	that you + (should) + bare infinitive	supposition necessity probability
I suggest/ insist/	that they (should) + bare infinitive	requirements

propose/ recommend/ demand/ request		order purpose advice
as if/ as though	+ past simple/ past continuous/ past perfect/ past perfect continuous	action contrary to reality
in order that / so that that / lest	+ (should, might, could, may) + bare infinitive	actions and states: problematic, not necessarily contradicting reality
it is time/ it is high time	+ past simple/ past continuous	imaginary actions
whatever (happens...) no matter (what/who) I don't care (when)	+ present tenses	

Ex:

It is necessary that he read/should read it.

We insist that she study/should study better.

He talks as if he were sick.

He walked as if he had not heard.

He looked as though he had lost his friend.

We spoke quietly so that he might work in peace.

Write down all these words lest you should forget them.

It's time we were going.

It's high time you finished developing our app.

Whatever happens, I'll accept it.

No matter what you say, I won't listen.

I don't care when they show up.

17. Fill in: if, as if, that, provided, lest, so that.

- 1) I hope the weather will be fine tomorrow. It looks _____ it were going to rain.
- 2) _____ the distance between the two points (should) be the same, no further experiments will be necessary.
- 3) He suggested _____ the question (should) be discussed at the next meeting.
- 4) He might have done the work quite easily, _____ he had prepared the material beforehand.
- 5) It's better to take the taxi _____ we should miss the train.
- 6) _____ you see him, ask him to come.
- 7) I wrote down the figures _____ I should forget them.
- 8) Speak louder _____ everyone could follow you.
- 9) Make haste _____ you should be late.
- 10) It is necessary _____ this law should be observed.

18. Open the brackets.

- 1) I wish I _____ (not be) so busy.
- 2) He demands that the question _____ (be discussed) at tomorrow's meeting.
- 3) But for the deadline we _____ (join) you.
- 4) He passed by as though he _____ (not recognize) me.
- 5) I wish you _____ (hear) it before.

- 6) He looked as if he _____ (spend) all night studying.
- 7) If only I _____ (have) plenty of time for reading this article, but I have only five minutes.
- 8) He talks as if he _____ (live) in England for many years.
- 9) I wrote several versions of this program. It is high time I _____ (stop) this work.
- 10) I wish I _____ (work) hard during the term.
- 11) The delegates proposed that the resolution _____ (be discussed) at once.
- 12) It is necessary that the report _____ (be done) in time.
- 13) I wish he _____ (not be) so impolite.

19. Complete the sentences.

- 1) You would know English better if
- 2) Should I see him
- 3) Suppose you are a first-year student
- 4) I'll dictate you slowly lest you
- 5) It seems as if
- 6) The app looks as if
- 7) If he had had an admittance....
- 8) It's probable that the question
- 9) If I had known this, I
- 10) On condition one knows this law
- 11) I'm not going to reveal the code unless
- 12) But for our advice

20. Before reading the text, answer the following questions. This kind of information is well known and you'll easily deal with them: What is virtual reality? What devices are used to support it? What are the application areas of virtual reality apps?

Virtual reality

Flight simulators are perfect examples of programs that create a virtual reality, or a computer-generated "reality" in which the user does not merely watch but is able to participate. The user supplies input to the system by pushing buttons or moving a yoke or joystick, and the computer uses real-world data to determine the results of those actions. For example, if the user pulls back on the flight simulator's yoke, the computer translates the action according to built-in rules derived from the performance of a real airplane. The monitor shows exactly what an airplane's viewscreen would show as it began to climb. If the user continues to instruct the "virtual plane" to climb without increasing the throttle, it will "stall" (as would a real plane) and the "pilot" will lose control. Thus the user's physical actions are immediately and realistically reflected on the computer's display.

VR programs give users three essential capabilities-immersion, navigation, and manipulation. In order for the alternate reality to be effective, people must feel immersed in it, not merely as if they are viewing it on a screen. To this end, some programs require people to wear headphones or 3-D glasses or to use special

controllers or foot pedals. The most sophisticated means of immersing users in a VR program is through the use of head-mounted displays, helmets that feed slightly different images to either eye and that move the computer image in the direction that the user moves his or her head.

VR programs also create a world through which one can navigate as “realistically” as in the real world. For example, a street scene will always show the same doors and windows, which, though their perspective may change, is always absolutely consistent internally. The most important aspect of a VR program is its ability to let people manipulate objects in that world. Pressing a button may fire a gun, holding down a key may increase a plane's speed, clicking a mouse may open a door, or pressing arrow keys may rotate an object.

VR can serve to new product design, helping as a tool for engineering in manufacturing processes. Among other examples, we may also mention EDA (Electronic Design Automation), CAD5 (Computer Aided Design), and CAM (Computer Aided Manufacturing). Beyond modeling assembly parts, 3D computer graphics and VR techniques are currently used in the research and development of medical devices for innovative therapies, treatments, patient monitoring. VR also finds application into health care professionals training from anatomy instruction to surgery simulation. 3DVirtual reality simulation is becoming widely used for urban planning and transport projects. Architects use this technology to create virtual designs of buildings. Dramatic improvements in the field of VR are taken place due to the extensive research and usage of VR in the military applications where they are applied almost for flight simulations or combat training.

21. Express your agreement or disagreement with the following statements.

- 1) In flight simulators, the computer uses real-world data to determine the results of the user's input actions.
- 2) VR programs give users three essential capabilities-immersion, navigation, and manipulation.
- 3) The most sophisticated means of immersing users in a VR program is through the use of 3-D glasses.
- 4) The most important aspect of a VR program is its ability to let people view objects in that world.
- 5) VR has many areas of application including manufacture, design, health care, etc.

22. Complete the following sentences according to the text.

- 1) A flight simulator is a system that allows....
- 2) VR programs have the following capabilities:
- 3) Users are immersed in a VR program through the use of
- 4) The most important aspect of a VR program is
- 5) VR can be used for many applications besides gaming

23. Ask your groupmates:

- 1) what virtual reality is;

- 2) what rules the computer uses to determine the results of users' actions in flight simulator;
- 3) what devices help immerse users into VR;
- 4) what techniques developers use to create a world through which one navigates as "realistic" as possible;
- 5) what application areas of VR are mentioned in the text.

24. Make a presentation describing a virtual reality device or an application.

Don't forget to mention these points:

- 1) general information;
- 2) specifications;
- 3) areas of application;
- 4) performance parameters;
- 5) special features.

Use the following links to help you: <http://www.vrealities.com/>, <http://vrlab.epfl.ch/>.

Учебное издание

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ENGLISH 4 IT

**Пособие по развитию основных видов речевой деятельности
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вечерней форм обучения**

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