Министерство сельского хозяйства РФ

Федеральное государственное бюджетное образовательное
учреждение высшего образования
«Брянский государственный аграрный университет»

КАФЕДРА ИНОСТРАННЫХ ЯЗЫКОВ

Составители:
МЕДВЕДЕВА С.А., ГОЛУБ Л.Н.

**АНГЛИЙСКИЙ ЯЗЫК
ДЛЯ АКАДЕМИЧЕСКИХ И ПРОФЕССИОНАЛЬНЫХ ЦЕЛЕЙ**

**09.04.03 ПРИКЛАДНАЯ ИНФОРМАТИКА
(УРОВЕНЬ МАГИСТРАТУРЫ)**
Учебное пособие

Брянская область,
2021

Медведева, С. А. Английский язык: учебное пособие для академических и профессиональных целей для студентов направления подготовки 09.04.03 Прикладная информатика (уровень магистратуры) / С. А. Медведева, Л. Н. Голуб. – Брянск: Изд-во Брянский ГАУ, 2021. – 129 с.

Учебное пособие предназначено для обучающихся по направлению подготовки 09.04.03 Прикладная информатика, изучающих дисциплину «Иностранный язык делового и профессионального общения». Основной целью пособия является овладение студентами магистратуры необходимым и достаточным уровнем коммуникативной компетенции, который позволит пользоваться иностранным языком в различных областях официально-деловой сферы, профессиональной деятельности, в научной и практической работе, в общении с зарубежными партнёрами, для самообразовательных и других целей.

Рецензенты:
кандидат педагогических наук, доцент, заведующий кафедрой иностранных языков Брянского государственного аграрного университета М.В. Семышев;
кандидат экономических наук, доцент, заведующий кафедрой информационных систем и технологий Брянского государственного аграрного университета Н.Д. Ульянова.

Рекомендовано к изданию решением учебно-методической комиссии института энергетики и природопользования Брянского ГАУ, протокол № 3 от 28.10.2021 г.

Введение

Учебное пособие по академическому и техническому английскому языку состоит из двух разделов: Раздел 1. Научная сфера деятельности. Академическое письмо. Раздел 2. Профессиональная сфера общения. Первый раздел содержит материал, раскрывающий особенности чтения текстов академической направленности, специфические черты академического чтения и академического письма, академического монологического высказывания и академической презентации. Во втором разделе представлены тексты профессиональной направленности, представляющие интерес для студентов.

После каждого раздела имеются лексические упражнения, которые направлены на обучение не только чтению различных видов (изучающего, ознакомительного, просмотрового и поискового), но и коммуникативным навыком. Система лексических упражнений соответствует структуре занятия и способствует закреплению учебного материала.

Цель каждого раздела - развитие умения чтения и адекватного перевода текстов по направлению подготовки; написания эссе, тезисов, докладов, рефератов и аннотаций.

Пособие рекомендуется к использованию как для аудиторной, так и для самостоятельной работы студентов-магистрантов всех форм обучения.

Работа с данным пособием способствует формированию у обучающихся следующих компетенций:

УК-4: Способен осуществлять деловую коммуникацию в устной и письменной формах на государственном языке Российской Федерации и иностранном(ых) языке(ах):

УК-4.3. Ведёт деловую переписку на иностранном языке с учётом особенностей стилистики официальных писем и социокультурных различий.

УК-4.4. Выполняет для личных целей перевод официальных и профессиональных текстов с иностранного языка на русский, с русского языка на иностранный.

УК-4.6. Устно представляет результаты своей деятельности на иностранном языке, может поддержать разговор в ходе их обсуждения.

Раздел 1. НАУЧНАЯ СФЕРА ДЕЯТЕЛЬНОСТИ. АКАДЕМИЧЕСКОЕ ПИСЬМО.

1.1 Высшее образование в России и за рубежом.

Higher education in the world

1. Group work (home group):

- Are systems of higher education different from country to country?

- What are their special features?

Complete the table with specific features of different systems of higher education. Match the specific feature to the country it belongs to.

France	a) This country consisted of strong principalities in the past and even now, the regional universities have autonomy in determining their curriculum under the direction of rectors.
	b) Through colonial influence and through the work of missionaries, this country introduced many aspects of their system in North and West Africa and the Caribbean.
Germany	c) The doctoral degree, or Ph.D., invented in this country, has got popularity all around the world.
	d) Its universities have almost complete autonomy from national or local government in their administration and the determination of their curricula, but the schools receive their funding from the state.
UK	e) In this country there is a national idea that students who have completed secondary school should have at least two years of university education.
	f) For most undergraduates of this country it is possible to complete a degree course in three years rather than the standard four years.
	g) This model of higher education has been copied to varying degrees in Canada, Australia, India, South Africa and New Zealand.
USA	h) The curriculum in this country is uniform and each university has little to distinguish itself.
	i) A marked feature of this education is the de-emphasis on lecture and examination. Students are evaluated according to their performance in individual courses where discussion and written essays are important.
	j) Higher education in this country is free and open to all students who have passed examination.

Reading

2. Group work (expert group):

Each group will read one of the texts about some systems of higher education and will make a summary of its specific features.

SYSTEMS OF HIGHER EDUCATION IN FRANCE AND GERMANY

Both France and Germany have systems of higher education that are basically administered by state agencies. Entrance requirements for students are also similar in both countries. In France an examination called the *baccalauréat* is given at the end of secondary education. Higher education in France is free and open to all students who have passed this examination. A passing mark admits students to a preparatory

first year at a university, which finishes in another, more strict examination. Success in this examination allows students to attend universities for other three or four years until get the first university degree, called a *licence* in France.

Basic differences, however, distinguish these two countries' systems. French educational districts, called *academies,* are under the direction of a rector, who is appointed by the national government and is in charge of the university. The uniformity in curriculum in the country leaves each university with little to distinguish itself. That is why many students prefer to go to Paris, where there are better accommodations and more entertainment for students. Another difference is the existence in France of higher-educational institutions known as great school, which give advanced professional and technical training. Different great schools give a scrupulous training in all branches of applied science and technology. Their diplomas have higher value than the ordinary *licence*.

In Germany, a country made up of what were once strong principalities, the regional universities have autonomy in determining their curriculum under the direction of rectors. Students in Germany change universities according to their interests and the strengths of each university. In fact, it is a custom for students to attend two, three, or even four different universities in the course of their studies, and the professors at a particular university may teach in four or five others. This mobility means that schemes of study and examination are free and individual, what is not typical for France.

Each of these countries has influenced higher education in other nations. The French, either through colonial influence or through the work of missionaries, introduced many aspects of their system in North and West Africa, the Caribbean, and the Far East. In the 1870s Japan's growing university system was remodeled along French lines. France's *great schools* have been copied as models of technical schools. German influence has come in philosophical concepts regarding the role of universities. The Germans were the first to stress the importance of universities in the sphere of research. The doctoral degree, or Ph.D., invented in Germany, has gained popularity in systems around the world.

THE SYSTEM OF HIGHER EDUCATION IN GREAT BRITAIN

The autonomy of higher-educational institutions is important in Great Britain. Its universities enjoy almost complete autonomy from national or local government in their administration and the determination of their curricula. However the schools receive nearly all of their funding from the state. Entry requirements for British universities are rather difficult. A student must have a General Certificate of Education (corresponding to the French *baccalauréat*) by taking examinations in different subjects. If they have greater number of "advanced level" passes, in contrast to General Certificate of Secondary Education ("ordinary level") passes, then the student has better chances of entering the university of his choice. This selective admission to universities, and the close supervision of students by a tutorial system, makes it possible for most British students to complete a degree course in three years instead of the standard four years. Great Britain's academic programs are more highly specialized than the same programs in other parts of Europe. Great Britain's model of

higher education has been copied to different degrees in Canada, Australia, India, South Africa, New Zealand, and other former British colonial territories in Africa, Southeast Asia, and the Pacific.

THE SYSTEM OF HIGHER EDUCATION IN THE UNITED STATES

The system of higher education in the United States differs from European in certain ways. In the United States, there is a national idea that students who have completed secondary school should have at least two years of university education.

That is why there is a great number of "junior colleges" and "community colleges". They give two years of undergraduate study. Traditional universities and colleges, where a majority of students complete four years of study for a degree.

Universities that provide four-year study courses can be funded privately or can have state or city foundations that depend heavily on the government for financial support. Private universities and colleges depend on students payments. The state governments fund the nation's highly developed system of universities, which give qualified higher education.

In the American system, the four-year, or "bachelor's" degree is ordinarily given to students after collecting of course "credits," or hours of classroom study. The quality of work done in these courses is assessed by continuous record of marks and grades during a course. The completion of a certain number (and variety) of courses with passing grades leads to the "bachelor's" degree. The first two years of a student's studies are generally taken up with obligatory courses in a broad range of subjects, also some "elective" courses are selected by the student. In the third and fourth years of study, the student specializes in one or perhaps two subject fields. Postgraduate students can continue advanced studies or research in one of the many graduate schools, which are usually specialized institutions. At these schools students work to get a "master's" degree (which involves one to two years of postgraduate study) or a doctoral degree (which involves two to four years of study and other requirements).

A distinctive feature of American education is the de-emphasis on lecture and examination. Students are evaluated by their performance in individual courses where discussion and written essays are important. The American model of higher learning was adopted wholesale by the Philippines and influenced the educational systems of Japan and Taiwan after World War II.

STUDY IN RUSSIA: EDUCATION IN RUSSIA

Higher education in Russia is similar in structure to the central European system, with a few key differences. The system is divided into four main sections – primary, secondary, higher and postgraduate education. 776 higher education institutions across 82 regions in Russia accept international students, and choosing Russia as your study abroad destination will give you a wide variety of choices in finding the right higher education for you!

It takes 11 years to complete a secondary education in Russia before students can enter the higher education system. After successfully finishing their ninth year of schooling, students will receive a certificate of Basic General Education with the

option of pursuing two more years of secondary education. After finishing the two additional years, a Certificate of Complete Secondary Education will then be awarded. This certificate serves as proof that the student is eligible to pursue their higher education.

Three kinds of higher education institutions in Russia

1. **Universities** offer a broad range of programs on all levels.
2. **Academies** place a larger emphasis on research and practical skills, normally dedicated to specific subject areas such as art, architecture or science.
3. **Institutes** are independent branches of universities or academies which offer professional educational courses.

The higher education system in Russia is renowned for its achievements and emphasis in the field of science and technology. Many of the courses offered at state-funded institutions are focused around the sciences, but a large variety of humanities and social sciences programs are offered as well!

In recent years, private higher education institutions have emerged to complement these traditional Russian institutions, offering programs in other fields such as economics, business and law.

Degree Structures in the Russian Education System

While education in Russia is largely based on the Bologna principles, education in Russia structures degrees slightly differently than other countries in Europe.

- Upon completion of secondary education, students can pursue either a Bachelor's or Specialist's degree, both qualifying students to later pursue a master's degree. Bachelor's degrees are given after four years of full-time study at a university. Specialist degrees are awarded after a minimum of five years of study and are more focused on practical education in a student's chosen field. Both qualifications require students to successfully defend a thesis and pass examinations. This degree is conferred in all fields except medicine, where the first stage of education lasts for six years.
- Master's degrees are awarded after two years of study with one year dedicated to research which includes practice and preparation for a thesis defense.
- Students who possess a master's degree are eligible to pursue their PhD studies. Postgraduate education is divided into two parts in Russia, and two degrees are required to confirm students' status as a scientist. Postgraduate studies can only be pursued at a university or scientific institute. After successful completion of the first part of their postgraduate education, students are awarded a Candidate of Sciences degree.
- The final Doctoral degree is obtained after an additional 2-4 years of study in postgraduate education. This certification then leads to a Doctorate degree. As there is a 10-year gap between both degrees, the final Doctorate qualifications are often awarded to Candidates of Science after they're well into their careers in academia.

Neither Bachelor's or Master's degrees existed in the Soviet system and were introduced to conform the Russian education system with international standards in accordance with the Bologna Process.

In addition, an <u>MBA in Russia</u> is becoming more and more popular among international students, since Russia is considered a financial superpower in the energy and gas sectors.

This change has helped Russian higher education qualifications receive recognition and acceptance abroad, which was a previous problem for international alumni, and explains the rising number of international students choosing Russia as their study abroad destination!

3. Before you read Text "Postgraduate Degrees", discuss these questions with your group mates or teacher.
1. What does postgraduate education involve?
2. Does postgraduate education vary in different countries?
3. What is its organization in most countries?
4. Do postgraduate programs require any examinations?
5. What is the structure of postgraduate education in Russia?

4. Read and translate Text. Find out if your answers are right or wrong. Use the introductory phrases, like: *Exactly. It's (partly) true. Just the opposite. I don't think so. That's right. That's wrong.*

Text 1. Postgraduate degrees
Postgraduate education (or graduate education in North America) involves learning and studying for degrees or other qualifications for which a first or Bachelor's degree is generally required. The organization and structure of postgraduate education varies in different countries, and also in different institutions within countries.

In most countries, the hierarchy of postgraduate degrees is as follows:
1. *Master's degrees.* These are sometimes placed in a further hierarchy, starting with degrees such as the Master of Arts and Master of Science, then Master of Philosophy, and finally Master of Letters. Many Master's students will perform research culminating in a paper, presentation, and defense of their research. This is called the Master's thesis.
2. *Doctorates.* An academic doctorate can be awarded as a PhD (Doctor of Philosophy). In the context of academic degrees, the term *philosophy* does not refer solely to the field of philosophy, but is used in a broader sense in accordance with its original Greek meaning, which is *love of wisdom.*

Many postgraduate programs require students to pass one or several examinations in order to demonstrate their competence as scholars. In some departments, a comprehensive examination is often required in the first year, and is designed to test a student's background undergraduate-level knowledge. Most postgraduate students perform teaching duties.

Doctoral programs often require students to pass more examinations. Programs often require a Qualifying Examination, a PhD Candidacy Examination, or a General Examination, designed to students' grasp of a broad sample of their discipline, and/or one or several Special Field Examinations which test students in their narrower

selected areas of specialty within the discipline. These exams must be passed to be allowed to proceed on to the thesis.

The criteria for award of Doctorates vary somewhat throughout the world, but typically require the submission of a substantial body of original research undertaken by the candidate. This may take the form of a single thesis or dissertation, and will usually be assessed by a small committee of examiners appointed by the university. Doctorates are awarded to students who have demonstrated:

- the creation and interpretation of new knowledge through original research of a quality to satisfy peer review, extend the forefront of the discipline, and merit publication;

- a systematic acquisition and understanding of a substantial body of knowledge which is at the forefront of an academic discipline or an area of professional practice;

- the general ability to conceptualize, design and implement a project for the generation of new knowledge, applications or understanding at the forefront of the discipline;

- a detailed understanding of applicable techniques tor research and advanced academic enquiry.

In total, the typical Doctoral degree takes between three and eight years from entering the program to completion, though this time varies depending upon the department, thesis topic, and many other factors.

Habilitation (lat. habilis - *fit, proper, skilful*) is the highest academic qualification a scholar can achieve by his or her own pursuit in several European and Asian countries. Earned after obtaining a research Doctorate, such as a PhD, habilitation requires the candidate to write a professorial thesis/dissertation (often known as a Habilitation thesis/dissertation) based upon independent scholarship, reviewed by and defended before an academic committee in a process similar to that for the doctoral dissertation. However, the level of scholarship has to be considerably higher than that required for a research doctoral (PhD) dissertation in terms of quality and quantity, and a Habilitation dissertation must be accomplished independently, in contrast with a PhD dissertation typically directed or guided by a faculty supervisor.

Habilitation qualification (Habil. Dr.) exists in France, Switzerland, Germany, Austria, Denmark, Bulgaria, Poland! Portugal, Sweden, Finland, the Czech Republic, Slovakia, Hungary, Slovenia, Armenia, Azerbaijan, Latvia, Lithuania, Moldova, Kyrgyzstan, Kazakhstan, Uzbekistan, Ukraine, Belarus, and Russia (Doktor nauk). Those who have achieved habilitation can denote the fact by placing the abbreviation *Dr hab.* or *Dr habil.* before their names.

Many post-Soviet countries, including Russian Federation, have a two-stage research degree obtaining path, generally similar to the doctorate system in Europe. The first stage is named Kandidat nauk (literal translation means *Candidate of Sciences).*

According to par. 262 International Standard Classification of Education (ISCED) UNESCO 2011, for purposes of international educational statistics Candidate of Sciences is equivalent to Doctor of Philosophy (PhD) degree as awarded in many English-speaking countries. It allows its holders to reach the level of the Associate Professor (Docent). The Candidate of Sciences degree requires at

least (and typically more than) three, four or five years of postgraduate research which is finished by defense of a dissertation or a thesis. Additionally, a seeker of the degree has to pass three examinations (a so-called Candidate minimum): in his/her special field, in a foreign language, and in the history and philosophy of science. After additional certification by the corresponding experts, the Candidate degree may be recognized internationally as an equivalent of PhD. The second stage is Doktor nauk (Doctor of Sciences). It requires many years of research experience and writing a second dissertation. The degrees of Candidate and Doctor of Sciences are only awarded by the special governmental agency (Higher Attestation Commission). A university or a scientific institute where the thesis was defended can only recommend awarding a seeker the sought degree.

5. Complete the following sentences with details from the Text.
1._____Master's degree programs usually include _____.
2. _____The degree of an academic doctorate is called_____.
3. Examinations are required to test_____.
4. Typically a doctorate degree takes_____to complete.
5. _____ _____is earned after obtaining a PhD degree.
6. The first stage research degree in Russia is_____.
7. The second stage research degree in Russia is_____.

6. Locate the following details in the Text. Give the line numbers.
1.   In which lines does the author explain the meaning of the term *philosophy* in the context of academic degrees?
2.   Where in the Text does the author first mention the requirements for Doctoral degree programs?
3.   Where in the Text does the author discuss what doctoral students are expected to demonstrate to be awarded a PhD degree?
4.   At what point in the Text does the author discuss the level of scholarship required for habilitation?
5.   In which lines does the author explain the equivalence of Russian postgraduate degrees to the ones recognized internationally?

7. Underline the detail that is NOT mentioned in the Text in each of the sentences below.
1.   Postgraduate education includes Bachelor's degrees, Master's degrees, and Doctor's degrees.
2.   Doctoral degree programs require students to pass a qualifying examination, a comprehensive examination, a special field examination, and a PhD candidacy examination.
3.   Habilitation qualification exists in France, Austria, Denmark, Bulgaria, Great Britain, Poland, Russia and other countries.

8. Answer the following detail questions.
1. According to the Text, Master's degree students complete their research with

a) examinations.

b) the defense of a thesis.

c) a paper.

2. According to the Text, postgraduate students perform

a) work as assistants.

b) interviews for postgraduate candidates.

c) teaching duties.

3. According to the Text, a thesis is assessed by

a) an examiners' committee.

b) a professors' council.

c) an attestation committee.

4. According to the Text, a habitation thesis is accomplished

a) with the help of a faculty supervisor.

b) independently.

c) with the help of an academic committee.

5. According to the Text, what examinations do Candidate of Sciences degree seekers have to pass?

a) in a special field, science, and a foreign language

b) in a special field, local history, and a foreign language

c) in a special field, the history and philosophy of science, and a foreign language

9. Run the test

Academic writing style academic writing quiz

How much do you know about academic writing? Find out by doing this fun quiz.

1. The main difference between academic writing and normal writing is that academic writing:

a) uses longer words

b) tries to be precise and unbiased

c) is harder to understand

2) The difference between a project and an essay is:

a) essays are longer

b) projects are longer

c) students choose projects' topics

3) Teachers complain most about students:

a) not answering the question given

b) not writing enough

c) not referencing properly

4) The best time to write an introduction is often:

a) first

b) last

c) after writing the main body

5) Plagiarism is:

a) a dangerous disease

b) an academic offence

c) an academic website

6) Making careful notes is essential for:
a) writing essays
b) revising for exams
c) all academic work
7) An in-text citation looks like:
a) (Manton, 2008)
b) (Richard Manton, 2008)
c) (Manton, R. 2008)
8) Paraphrasing a text means:
a) making it shorter
b) changing a lot of the vocabulary
c) adding more detail
9) Paragraphs always contain:
a) six or more sentences
b) an example
c) a topic sentence
10) The purpose of an introduction is:
a) to give your aims and methods
b) to excite the reader
c) to summarize your ideas
11) Proof-reading means:
a) getting a friend to check your work
b) checking for minor errors
c) rewriting
12) Teachers expect students to adopt a critical approach to their sources:
a) sometimes
b) only for Master's work
c) always

Answers

1 b, 2 c, 3 a, 4 c, 5 b, 6 c, 7 a, 8 b, 9 c, 10 a, 11 b, 12 c

1.2 ACADEMIC READING
TYPES OF READING

1. Read and translate
1) Skimming
What is it?
Skimming involves running your eye very quickly over large chunks of text.
Skimming allows you to pick up some of the main ideas without paying attention to detail.
When to use it?
Skimming is used to quickly locate relevant sections from a large quantity of written material.
How to skim?
- note any bold print and graphics
- start at the beginning of the reading and glide your eyes over the text very quickly

- do not read the text in total; you may read a few words of every paragraph (the first and last sentences, for ex.)
- always familiarize yourself with the reading material by gaining an overview and/or skimming before reading in detail

2) *Scanning*
What is it?
Scanning is sweeping your eyes (like radar) over part of a text to find specific pieces of **information.**
When to use it?
to quickly locate specific information from a large quantity of written material.
How to scan?
- after gaining an overview and skimming, identify the section(s) of the text that you probably need to read
- start scanning the text by allowing your eyes (or finger) to move quickly over a page
- as soon as your eye catches an important word or phrase, stop reading
- when you locate information requiring attention, you then slow down to read the relevant section more thoroughly

3) *Intensive reading*
Wind is it?
Intensive reading is detailed, focused, 'study' reading of those important parts, pages or chapters.
When to use it?
When you have previewed an article and used the techniques of skimming and scanning to find what you need to concentrate on, then you can slow down and do some intensive reading.
How to read intensively?
- start at the beginning; underline any unfamiliar words or phrases; do not stop the flow of your reading
- if the text is relatively easy, underline, highlight or make brief notes
- if the text is difficult, read it through at least once before making notes
- be alert to the main ideas: each paragraph should have a main idea, often contained in the; sentence (usually the first sentence) or the last sentence
- when you have finished go back to the unfamiliar vocabulary look it up in an ordinary or subject-specific dictionary; if the meaning of a word or passage still evades you, leave it and read on

CRITICAL REVIEW
- What is meant by "critical"?
- You are not asked to criticize in a negative manner.
- This task requires you *to question* the information and opinions expressed in the text and present your *evaluation* (when you decide the strengths and weaknesses of a text) and *analysis* (your understanding of interrelation and interinfluence of the text's main components).

Vocabulary

- The text comes from...
- The author(s) is (are)...
- It was published in... (the year)
- The paper is entitled...
- The text deals with/is concerned with...
- The text
- describe**s**/examines/reveals/exposes/
- dwells on/explains/addresses/discusses/
- presents/covers/outlines/states/offers/
- considers /looks into/treats...
- I lie text is structurally divided into ... parts
- The text consists of...
- In the first part it is said about...
- The second part touches upon...
- In the final part the author comes to the conclusion that...
- The problems addressed in the text are acute/urgent/vital/burning
- The text deals with the burning problems of...
- The author gives an account of...
- The author's attention is focused on...
- The author remains concentrated on these problems throughout the text
- The text seems to be thought provoking/well illustrated/quite descriptive / analytical, etc.

LITERARY REVIEW

Aim is to show your reader (your tutor) that you have read, and have a good grasp of, the main published work concerning a particular topic or question in your field.

Its **purpose** are:
1) to define and limit the problem you are working on;
2) to place your study in an historical perspective;
3) to avoid unnecessary duplication;
4) to evaluate promising research methods;
5) to relate your findings to previous knowledge and suggest further research

It should take the *form* of a critical discussion, the analysis of relevant works, linked to your purpose and rationale.

Its *functions* are as follows:
1) compare and contrast different authors' views on the issue;
2) group authors who draw similar conclusions;
3) criticize aspects of methodology;
4) note areas in which authors are in disagreement;
5) highlight exemplary studies;
6) highlight gaps in research;
7) show how your study relates to previous studies;
8) show how your study relates to the literature in general;

9) conclude by summarizing what the literature says.

DON'T

Describe what one writer says, then going on to give a general overview of another writer, and then another, and so on and so forth.

DO

• group together and compare/contrast the varying opinions of different writers on certain topic

• structure all works by topic areas, controversial issues or by questions to which there are varying approaches and theories

• discuss what the different literature argues, remembering to link this to your own purpose

• include a summary of what the literature implies, again linking to your hypothesis or main question

Recommendations

• Include a clear, short introduction which gives an outline of the review, including the main topics covered and the order of the arguments, with a brief rationale for this;

• Use quotations if appropriate;

• Acknowledge opinions which do not agree with your thesis thus making your argument stronger;

• Write your review in a formal, academic style;

• Keep your writing clear and concise;

• Avoid colloquialisms and personal language;

• Be objective and respectful of others' opinions (this is not the place for emotive language o ng personal opinions);

• When introducing someone's opinion, don't use "*says*", but instead an appropriate verb which more accurately reflects this viewpoint, such as "*argues*", "*claims*" or "*states*";

• Use the present tense for general opinions and theories, or the past simple tense form when referring to specific research or experiments carried out in the past;

• Avoid plagiarizing your sources making sure you consistently reference the literature you are referring to.

Final checklist

• why did you include some of the literature and exclude others?

• have you emphasized recent developments?

• have you focused on primary sources with only selective use of secondary ones?

• have you organized your material according to issues?

• is there a logic to the way you organized the material?

• does the amount of detail included on an issue relate to its importance?

• have you indicated the relevance of each reference to your research?

ACADEMIC SPEAKING
GENERAL GUIDELINES

Watch your language!
- check the pronunciation of difficult, unusual, or foreign words beforehand
- keep it simple (the aim is to communicate, not to show off your vocabulary!)
- emphasize the key points and repeat them throughout the whole speech

Use your voice to communicate clearly
- speak loudly enough for everyone in the room to hear you
- speak slowly and clearly
- don't rush
- key words are important: speak them out slowly and loudly
- vary your voice quality, otherwise your audience will switch off
- when you begin a new point, use a higher pitch and volume
- slow down for key points
- use pauses: they give you a chance to gather your thoughts, and your audience a chance to think
- use your body to communicate better
- stand straight and comfortably; do not slouch or shuffle about
- hold your head up, look around and make eye-contact with people in the audience; do not just address the lecturer or stare at a point on the carpet or the wall
- use your hands, your facial expression, and your body to add to your communication - it will make things far more interesting for the audience
- don't turn your back on the audience!

Interact with the audience
- be aware of how your audience is reacting: if they look confused, ask them why; stop if necessary and explain a point again; check if the audience is still with you (e.g. '*Does that make sense?' 'Is that clear?'*)
- be open to questions: if someone raises a hand, or asks a question in the middle of your talk answer it (if you can't answer it, turn the question back out to the audience and let someone else answer it)
- be ready to get the discussion going after your presentation (in case nobody has anything II say, have some provocative questions or points for discussion ready to ask)

Deal with nervousness
- smile: your audience will react warmly to you if you smile and at least look relaxed
- treat your audience like friends
- confess that you are nervous, and your audience will be sympathetic knowing how you are feeling
- breathe deeply – it will calm you down and help to control the slight shaking that you might get in your hands and your voice
- be well- prepared and practice giving your talk
- be organized

- slow down: force yourself to stop at the end of a sentence, take a breath, and think before you continue
-

1.3 ACADEMIC WRITING

1. Read, translate and discuss the text
What is Academic Writing and Why Do We Need It?

The term academic writing refers to the forms of expository and argumentative prose used by university students, faculty, and researchers to convey a body of information about a particular subject. Generally, academic writing is expected to be precise, semi-formal, impersonal, and objective.

The skill of writing is required throughout our life for various purposes. Academic writing is the writing you have to do for your university courses. So, academic writing skill is of utmost importance as it enables the students to communicate their ideas well in an organized and structured manner.

Academic writing is a formal type of writing and it's usage throughout the academic career also makes it easy for the students to cater to professional writing environment after completing their degrees. Academic writing differs in nature than the personal form of writing. Within the realm of personal writing, no rules and defined structure is followed. People use slangs and abbreviations in personal writing. Also, you are open to point out and refer to your own experiences like in writing a personal diary. On the other hand, academic writing is totally opposite as it follows a strict set of rules and structured practices. You are also not allowed to depict any personal experiences. Use of slangs is strictly forbidden. In academic writing, ideas are presented through taking reference from already published data and reports. The theories presented should be supported through properly citing the author and their published literature. The writer also needs to adhere to the defined rules of grammar, spelling and punctuation.

All academic writings own a particular tone that caters to the style related to a particular discipline. The academic tone wants writers to depict ideas objectively, concisely and in a formal way.

Academic writing does not only aim to be presented to the lecturer. It also aims to inform the target audience or the readers about the topic in a way which has a solid backing and proper argument for enhancing their knowledge. Readers will easily understand writing that involves clarity and avoids ambiguity at all levels. Academic writing skills are important to be learned and developed due to their on-going need in an academic environment. Regardless of your study discipline and the field of subjects, you will get to complete the assignments and the final reports as a course requirement.

These assignments and reports are basically marked upon the understanding of the topic or issue and how the topic is being handled by the students. Following are the main reasons to develop the good writing skills:

- The written assignments can only be best represented to the course instructor/marker through good writing and communication skills.

- Good communication skills are required to persuade the audience about your argument to be an objective one that is based on the ideas gathered from different literature and have solid formation.

- Development of sound writing as well as research skills is the key of attaining the good grades in academic environment.

- At tertiary level education, these skills are must to cope up with the dynamic environment of university where writing reports and presenting them hold much worth.

Through writing, you have more opportunities to get exposed to the underlying facts and exploring them will enhance your knowledge as well as thinking sphere.

Your instructors may have different names for academic writing assignments (essay, paper, research paper, term paper, argumentative paper/essay, analysis paper/essay, informative essay, position paper), but all of these assignments have the same goal and principles. Academic writing differs from other types of writing such as journalistic or creative writing. In most forms of academic writing a detached and objective approach is required. An academic argument appeals to logic and provides evidence in support of an intellectual position. It is important to present your arguments in logical order and to arrive at conclusions. However, academic writing can take many forms. You may be asked to write an essay, a report, a review or a reflective article. Different styles adhere to each of these types of academic writing, so always check with your lecturer. In academic writing, writers always interact with each other's' texts and so there will be frequent references to the ideas, thinking or research of other authors writing in this field. You must give credit to those with whom you are interacting and there are structured guidelines for referencing and citation.

Main features of academic writing:

1. Complexity

Written texts are shorter and have longer, more complex words and phrases. They have more noun-based phrases, more nominalizations, and more lexical variation. Written language is grammatically more complex than spoken language. It has more subordinate clauses, more long sequences of prepositional phrases, more attributive adjectives and more passives than spoken language. There are eight main features of academic writing that are often discussed. Academic writing is to some extent: complex, formal, objective, explicit, hedged, and responsible. It uses language precisely and accurately.

2. Formality

Academic writing is relatively formal. In general this means that in an essay you should avoid colloquial words and expressions. Academic writing avoids informal two-word verbs. This is done by replacing them with a more formal equivalent - bring up / raise, set up / establish.

3. Precision

In academic writing, facts and figures are given precisely. In academic writing you need to be precise when you use information, dates or figures. Do not use «a lot of people» when you can say «50 million people».

For example: Chemists had attempted to synthesize quinine for the previous hundred

years but all they had achieved was to discover the extreme complexity of the problem.

The volatile oily liquid beta-chloro-beta-ethyl sulphide was first synthesized in 1854, and in 1887 it was reported to produce blisters if it touched the skin. It was called mustard gas and was used at Ypres in 19I7, when it caused many thousands of casualties.

4. Objectivity

This means that the main emphasis should be on the information that you want to give and the arguments you want to make, rather than you. This is related to the basic nature of academic study and academic writing, in particular. Nobody really wants to know what you «think» or «believe». They want to know what you have studied and learned and how this has led you to your various conclusions. The thoughts and beliefs should be based on your lectures, reading, discussion and research and it is important to make this clear.

In general, avoid words like «I», «me», «myself». A reader will normally assume that any idea not referenced is your own. It is therefore unnecessary to make this explicit. Don't write: «In my opinion, this a very interesting study». Write: «This is a very interesting study».

5. Accuracy

Academic writing uses vocabulary accurately. Most subjects have words with narrow specific meanings. Linguistics distinguishes clearly between «phonetics» and «phonemics»; general English does not. Choose the correct word, for example, «meeting», «assembly», «gathering» or «conference». You also need to be accurate in your use of grammar.

6. Responsibility

In academic writing you must be responsible for, and must be able to provide evidence and justification for, any claims you make. You are also responsible for demonstrating an understanding of any source texts you use. This is done by paraphrasing and summarizing what you read and acknowledging the source of this information or ideas by a system of citation.

ESSAY
General info

What?

- 250 words
- 4-5 paragraphs
- linking devices to connect points
- no contractions
- no informal punctuation
- no informal vocabulary

How?

First paragraph is an introduction to the topic; it should restate the situation in *general* (2-3 sentences).

for ex.: *It is well-known that..., it is a common belief that..., most people suppose that..., etc.*

Second and third paragraphs introduce arguments in order to express your opinion, compa**re** two points of view, or to come to a certain conclusion. Each paragraph should start with a top sentence that states the main idea of it. Other sentences provide supporting details and examples.

for ex.: *in contrast, however, similarly, moreover, on top of that...*

Final paragraph should be a summary or conclusion that outlines your final judgment (1-2 sentences).

for ex.: *in conclusion, to conclude, to sum up, judging by..., it is clearly seen (that)... Using...*

Passive voice

for ex.: *Gunpowder was invented by the Chinese.*

Participles

for ex.: *She was the only person asking questions; The option chosen was the least expensive*

Modals

for ex.: *Governments should have done more to tackle climate change.*

Gerunds & Infinitives

for ex.: *She avoided answering the question; To study abroad seems to be the aim of many **young** people in Russia.*

Relative clauses

for ex.: *The College, which was founded in 2005, has over a thousand students.*

Conditionals

for ex.: *If you had worked hard, you would have passed the exam last year.*

What is an essay?

An essay is a group of paragraphs written about a single topic and a central main idea. It must have at least three paragraphs, but a five- paragraph essay is a common length for academic writing.

What is a thesis statement?

The thesis statement is the sentence that tells the main idea of the whole essay. It can be compared to a topic sentence, which gives the main idea of a paragraph. It usually comes at or near the end of the introductory paragraph.

Writing a strong thesis statement

- A thesis statement gives the author's opinion or states an important idea about the topic. It should give an idea that can be discussed and explained with supporting ideas:

The qualifications for getting into university in my country are unreasonable.

When studying a foreign language, there are several ways to improve your use of the language.

These are strong thesis statements. They can be discussed or explained.

- A thesis statement should not be a sentence that only gives a fact about the topic:

In the Northern Hemisphere, the summer months are warmer than the winter months.

This is not a strong thesis statement. It cannot be discussed or argued about.

- A thesis statement should not state two sides of an argument equally:

There are advantages and disadvantages to using nuclear power.

This could be a topic sentence, but it is not a thesis statement. It gives two sides of an argument without giving a clear opinion of support or disagreement. It could be revised like this:

Although there are some advantages, using nuclear power has many disadvantages and should not be a part of our country's energy plan.

This is a strong thesis statement. It clearly gives the writer's opinion about nuclear power.

How to connect the thesis statement and the essay.

The paragraphs in the main body of an essay should always explain the thesis statement. In addition, each paragraph in the main body should discuss one part of the thesis. Look at the following thesis statement. The topics to be discussed are underlined:

To create a successful advertisement, it is necessary for advertisers to answer three questions: What are we selling? Whom are we selling it to? And how can we make people want to buy it?

Possible topic sentences for each paragraph in the main body:

- The first step in creating a successful advertisement is to completely understand the product that is being sold and how it can be used.

- A second important part of creating an advertisement is deciding who is expected to buy the product.

- Finally, a way must be found to create an ad that will make people want to buy the product.

How to format an essay

1. Use double spacing (leave a blank line between each line of writing).

2. Leave 2.5 centimeters (1 inch) of space on the sides, and the top and bottom of the page. This space is called the margin.

3. If you type your essay, start the first line of each paragraph with five spaces (one tab). This is called indenting. If you write by hand, indent about 2 centimeters (3 /4 inch). Alternatively, paragraphs can begin at the left-hand margin with no indentation. However, you must then leave one line space between each paragraph.

4. Put the title of your essay at the top of the first page in the center.

Words and word combinations

to begin / start with ... - Для начала

according to... - Согласно...

Some people think... - Некоторые считают, что...

first... firstly... first of all... - Во-первых, ...

Secondly, ... - Во-вторых, ...

Moreover ... - Более того, ...

In addition... - К тому же, ...

In other words... - Другими словами

More importantly... - Еще более важно...

also... - Также

apart from this... - Не смотря на это

as far as I'm concerned ... - Насколько я понимаю...

to my mind ... In my view... - По моему мнению
for example... for instance ... - Например
like ... Such as ... - Такие как, например
on the one hand, ... on the other hand... - С одной стороны..., с другой стороны
Not only ... - Не только...
although... - Хотя
Instead... - Вместо
In contrast to this ... - Напротив
In spite of ... / despite ... - Несмотря на
Nevertheless - Тем не менее
to sum up ... In conclusion... - В заключение
thus... therefore... - Таким образом, ...
finally... - Итак.

Essay organization
Title (hidden question)
1. Introduction
1.1. Background.
1.2. Thesis.
2. Paragraph 1
2.1. Paragraph leader (topic sentence).
2.2. Main body (fact(s) and example(s)).
3. Paragraph 2
3.1. Paragraph leader.
3.2. Main body (facts and examples).
4. Paragraph 3
4.1. Paragraph leader.
4.2. Main body (facts and examples).
5. Conclusion.
5.1. Summary.
5.2. Prediction.

Types of essay
Persuasive / argumentative. Makes a claim or takes a position and backs it up with statistics, expert opinions, and other evidence you may review an opposing review and explain why it is wrong and you are right.
Comparison demonstrates similarities and differences between two topics.
Descriptive explains the what, why, how, when, and where of a topic. for example, a descriptive essay about a tree would explain what it is made of, why it grows, when it grows, and so on.
Evaluation describes a thing or event and explains its importance, value, and / or relevance. Did you like this thing? Why?
Narrative tells a story in a sequence of events. There should be some point, lesson, or idea gleaned from this narrative to make the essay meaningful.

Expository. The purpose of an expository essay is to present, completely and fairly, other people's views or to report about an event or a situation. Expository writing, or exposition, presents a subject in detail, apart from criticism, argument, or development; i.e., the writer elucidates a subject by analyzing it. The writer must present the evaluation of the issue and the conclusion based on the findings. Very close to expository is Research essay.

Советы по написанию эссе

- не используйте личные местоимения I, we, you. Замените их на people, (companies, cities), they;

- сделайте ваше сочинение связным: помимо клише, в каждом абзаце должны присутствовать ключевые слова – основа выбранной темы;

- наиболее часто в эссе используются глаголы в Present Simple (регулярное, постоянное, повторяющееся действие) и в Present Continuous (временное действие, меняющаяся ситуация);

- говоря о группах, используйте клише: most people (companies, cities), nearly everyone, many, almost all, some, few, not many;

- запомните, что в сложных предложениях в английском языке перед союзами and, but, so, or ставится запятая, при этом в сложносочинённом предложении перед словами because, whereas, when, (al) though запятая не ставится; однако, если эти слова стоят в начале предложения, т.е. придаточное стоит на первом месте, то запятая ставится:

I'll inform you when the new version with this feature is ready. - Я проинформирую вас, когда новая версия с этими функциями будет готова.

Although we had reviewed the film twice before, we never noticed these details about the shooting. - Хотя мы пересматривали этот фильм два раза, мы никогда не замечали эти детали съёмки.

The strategies of writing an essay

Стратегии написания эссе (алгоритм)
1. Analyze the title.
2. Collect all the ideas you have (brainstorm your ideas).
3. Draw a diagram to show which ideas and evidence to use.
4. Write your plan.
5. Write your first draft.
6. Ask for feedback on your first draft.
7. Write your final draft.

2. Translate and discuss the essay

Ideal house pets "A dog is man's best friend." That common saying may contain some truth, but dogs are not the only animal friend whose companionship people enjoy. For many people, a cat is their best friend. Despite what dog lovers may believe, cats make excellent house pets as they are good companions, they are civilized members of the household, and they are easy to care for. In the first place, people enjoy the companionship of cats. Many cats are affectionate. They will snuggle up and ask to be petted, or scratched under the chin. Who can resist a purring

cat? If they're not feeling affectionate, cats are generally quite playful. They love to chase balls and feathers, or just about anything dangling from a string. They especially enjoy playing when their owners are participating in the game. Contrary to popular opinion, cats can be trained. Using rewards and punishments, just like with a dog, a cat can be trained to avoid unwanted behavior or perform tricks. Cats will even fetch! In the second place, cats are civilized members of the household. Unlike dogs, cats do not bark or make other loud noises. Most cats don't even meow very often. They generally lead a quiet existence. Cats also do not often have "accidents." Mother cats train their kittens to use the litter box, and most cats will use it without fail from that time on. Even stray cats usually understand the concept when shown the box and will use it regularly. Cats do have claws, and owners must make provision for this. A tall scratching post in a favorite cat area of the house will often keep the cat content to leave the furniture alone. As a last resort, of course, cats can be declawed. Lastly, one of the most attractive features of cats as house pets is their ease of care. Cats do not have to be walked. They get plenty of exercise in the house as they play, and they do their business in the litter box. Cleaning a litter box is a quick, painless procedure. Cats also take care of their own grooming. Bathing a cat is almost never necessary because under ordinary circumstances cats clean themselves. Cats are more particular about personal cleanliness than people are. In addition, cats can be left home alone for a few hours without fear. Unlike some pets, most cats will not destroy the furnishings when left alone.

They are content to go about their usual activities until their owners return. Cats are low maintenance, civilized companions. People who have small living quarters or less time for pet care should appreciate these characteristics of cats. However, many people who have plenty of space and time still opt to have a cat because they love the cat personality. In many ways, cats are the ideal house pet.

3. Examine the following texts and identify any significant features. What kind of text does the extract come from and how does the language differ between the texts?

Text A

No one who had ever seen Catherine Morland in her infancy would have supposed her born to be an heroine. Her situation in life, the character of her father and mother, her own person and disposition, were all equally against her. Her father was a clergyman, without being neglected, or poor, and a very respectable man, though his name was Richard - and he had never been handsome. He had a considerable independence besides two good livings - and he was not in the least addicted to locking up his daughters. Her mother was a woman of useful plain sense, with a good temper, and, what is more remarkable, with a good constitution. She had three sons before Catherine was born; and instead of dying in bringing the latter into the world, as anybody might expect, she still lived on - lived to have six children more - to see them growing up around her, and to enjoy excellent health herself. A family of ten children will be always called a fine family, where there are heads and arms and legs enough for the number; but the Morlands had little other right to the word, for they were in general very plain, and Catherine, for many years of her life,

as plain as any. She had a thin awkward figure, a sallow skin without color, dark lank hair, and strong features - so much for her person; and not less unpropitious for heroism seemed her mind. She was fond of all boys' plays, and greatly preferred cricket not merely to dolls, but to the more heroic enjoyments of infancy, nursing a dormouse, feeding a canary-bird, or watering a rose-bush.

Indeed she had no taste for a garden; and if she gathered flowers at all, it was chiefly for the pleasure of mischief - at least so it was conjectured from her always preferring those which she was forbidden to take. Such were her propensities - her abilities were quite as extraordinary. She never could learn or understand anything before she was taught; and sometimes not even then, for she was often inattentive, and occasionally stupid. Her mother was three months in teaching her only to repeat the "Beggar's Petition"; and after all, her next sister, Sally, could say it better than she did.

Not that Catherine was always stupid - by no means; she learnt the fable of "The Hare and Many Friends" as quickly as any girl in England. Her mother wished her to learn music; and Catherine was sure she should like it, for she was very fond of tinkling the keys of the old forlorn spinner; so, at eight years old she began. She learnt a year, and could not bear it; and Mrs. Morland, who did not insist on her daughters being accomplished in spite of incapacity or distaste, allowed her to leave off. The day which dismissed the music-master was one of the happiest of Catherine's life. Her taste for drawing was not superior; though whenever she could obtain the outside of a letter from her mother or seize upon any other odd piece of paper, she did what she could in that way, by drawing houses and trees, hens and chickens, all very much like one another. Writing and accounts she was taught by her father; French by her mother: her proficiency in either was not remarkable, and she shirked her lessons in both whenever she could. What a strange, unaccountable character! - for with all these symptoms of profligacy at ten years old, she had neither a bad heart nor a bad temper, was seldom stubborn, scarcely ever quarrelsome, and very kind to the little ones, with few interruptions of tyranny; she was moreover noisy and wild, hated confinement and cleanliness, and loved nothing so well in the world as rolling down the green slope at the back of the house.

Text B
Peanut Butter-Chocolate Banana Cream Pie
Preparation: 30 min.
Total 3 hours 30 min. (including refrigerating).
Ingredients:
35 Nilla Wafers, finely crushed
¼ cup (1/2 stick) butter, melted
2 medium bananas, halved lengthwise, quartered
2 squares Baker's Semi-Sweet Baking Chocolate, divided
½ cup peanut butter
2 cups milk
2 packages (4-serving size each) Jell-O Vanilla Flavor Instant Pudding& Pie Filling
2 cups thawed Cool Whip Whipped Topping, divided
2 tablespoons Planters Cocktail Peanuts, coarsely chopped

Directions:

Preheat oven to 350 F. Mix wafer crumbs and butter until well blended; press firmly onto bottom and up side of 9-inch pie plate. Bake 5-8 min. or until golden brown. Cool completely; top with bananas.

Make chocolate curls from ½ square of the chocolate; reserve for garnish. Microwave remaining chocolate and the peanut butter on "High" 1 min; stir until chocolate is completely melted and mixture is well blended. Drizzle over bananas; set aside. Pour milk into large bowl. Add dry pudding mixes. Beat with wire whisk 2 min. or until well blended. Gently stir in 1 cup of the whipped topping. Spread over bananas; top with remaining 1 cup whipped topping.

Refrigerate at least 3 hours or overnight. Top with chocolate curls and peanuts just before serving. Store leftover pie in refrigerator. Makes 10 servings, 1 slice each.

Text C
Hello Andrew!

How are you? I'm writing to tell you some news about my family.

Do you remember my elder sister Olga? She has recently married! Her husband is a Swiss national, so they will live in Switzerland. Next week they will go to Switzerland and I will move to my sister's room. Now it is mine! I am very glad that I'll have my own room, finally.

My mother is very happy, but she is a little sad too. Switzerland is so far from our home, so we won't be able to visit our sister often. But we hope that she will often call us and write letters.

Oh, and another thing! My brother Alex will finish school next year. And my sister's husband says that Alex can live with them, if he wants to study in Switzerland. Alex is very surprised by this offer and dreams about life in Switzerland for days on end.

Well, got to go now. Drop me a line when you are free.

Your friend,

Volodya

4. Analyze the following two extracts in terms of style. Which one has a formal, academic style? Identify the features of acceptable and unacceptable academic style used in the extracts.

1. Contact with neighboring people must have been limited prior to European settlement in Australia in 1788. Melanesians from New Guinea and the islands of Torres Strait are known to have visited the northern shores, especially Cape York Peninsula. The Indonesians frequently visited Arnhem Land and the northwest of Western Australia to collect pearl and tortoise shell. As early as 1803, Matthew Flinders documented the size and frequency of Indonesian expeditions. He made contact with several ships while he was charting the coast of the Gulf of Carpentaria.

2. I think the first Europeans came to live in Australia around 1788. I don't know too much about how many Aborigines there were at the time but everyone says there must have been around 300 000 altogether. They say they came here 40 000 years ago when Java was joined to Asia and then they island hopped to New Guinea and then on to Australia. Anyway, when the Europeans came the Aborigines were split up

into about 500 tribes. About a third of them lived in Queensland, probably along the coast. It looks like only about 18 000 lived in the central deserts of SA and WA.

5. *Read the following pairs of sentences and decide which is more objective.*

a) Brown's excellent account of the UK economic situation has been widely distributed.

b) Brown's account of the UK economic situation, which is regarded by many to be well-researched and accurate,

6. *Find the most suitable Russian equivalents for the following academic English word combinations:*

- the problem requires a detailed study
- thus the core of the problem is
- to provide an overview and assessment
- to report new findings concerning
- to present an extensive treatment of
- to introduce rigorous examination of
- to comprise a theoretical overview of
- to be a tool for theoretical and numerical investigation
- to be of interest to researches in other fields of study
- there are different approaches to the solution of the problem.

7. *Match the words in the boxes on the left with the words on the right.*

1. solve	a) a research
2. hold	b) changes
3. make	c) problems
4. draw	d) a meeting
5. gather	e) survey
6. suggest	f) data
7. administer	g) an experiment
8. conduct	h) a questionnaire
9. undertake	i) recommendations
10. run	g) conclusions

8. *How to Write a Book Review (in details)*

1. План написания рецензии на произведение (The Plan of a Book Review)

A book review is written according to the following plan:

1. **Introduction**(an author, a title, a setting, a plot in short) -**Введение**(автор, название, место действия, краткий сюжет)

2. **The main part**(the plot in details, main characters) -**Основная часть**(сюжет частично, главные герои)

3. **Conclusion**(opinion about the book, reservations, recomendations) - **Заключение**(личное мнение, недостатки, рекомендации)

Фразы и выражения для рецензии на английском языке (Useful Words for a Book Review)

Общая оценка произведения:

1. a splendid book - великолепная книга

2. a powerful novel - производящий сильное впечатление роман

3. a gripping narrative - захватывающее повествование

О сюжете:

1. be meticulously (intricately) constructed - тщательно продуман

2. be richly detailed (is rich and ditailed in plot) - сюжет богат деталями

3. be set in - происходит в

4. be told by - (повествование) ведется от …

5. hold the attention right up to the final page - удерживать внимание читателя до последней страницы

6. The contrast between ….be done most skillfully - Контраст между … выполнен мастерски.

Мнение о произведении:

1. The only reservation of the book…   - Единственный недостаток книги…

2. It is difficult to put the book down… - Трудно отложить книгу …

3. I highly recommend the book to …   - Я очень рекомендую эту книгу…

9. An Example of a Review on the Book «The Secret History» by Donna Tart

The Secret History is **a powerful novel** written by the American writer Donna Tart. **The story is set in** New England and shows the life of students in some prestigious college. **It is told by** the fellow Richard Popen, who recently moved to the area from California. He happened to be aware of a terrible secret, which changed his life forever.

The Secret History is **rich and detailed in plot** and provides many layers for the reader to explore. **The intricately constructed** murder will **hold your attention right up to the final page**. The book is moving at times and amusing at others. The background of the book contains references to Ancient Greece, which you are sure to enjoy if you are interested in history.

As for the characters, Donna Tart has managed to create different personalities from indulgent parents to light-hearted hippies. She is very convincing and depicted her characters very true to life. **The contrast between** the sophisticated ideas of the elite group of students and their contemporaries **is done most skilfully.**

In conclusion, I would like to note that **the only reservation of the book** is its length. It has more over 500 pages, so it is rather long. However, **it's difficult to put the book down**. **I highly recommend** *The Secret History* **to** everyone as the greatest achievement of this young novelist.

Речевые клише для написания рефератов и аннотаций

Образцы клишированных аннотаций на английском языке

The article deals with …

As the title implies the article describes ...

The paper is concerned with…

It is known that…
It should be noted about…
The fact that … is stressed.
A mention should be made about …
It is spoken in detail about…
It is reported that …
The text gives valuable information on…
Much attention is given to…
It is shown that…
The following conclusions are drawn…
The paper looks at recent research dealing with…
The main idea of the article is…
It gives a detailed analysis of…
It draws our attention to…
It is stressed that…
The article is of great help to …
The article is of interest to …

Образцы клишированных рефератов на английском языке

The paper is devoted to (is concerned with) ….
The paper deals with ….
The investigation (the research) is carried out ….
The experiment (analysis) is made ….
The measurements (calculations) are made ….
The research includes (covers, consists of) ….
The data (the results of …) are presented (given, analyzed, compared with, collected)
The results agree well with the theory ….
The results proved to be interesting (reliable) ….
The new theory (technique) is developed (worked out, proposed, suggested, advanced) ….
The new method (technique) is discussed (tested, described, shown) ….
This method (theory) is based on ….
This method is now generally accepted ….
The purpose of the experiment is to show ….
The purpose of the research is to prove (test, develop, summarize, find) ….
Special attention is paid (given) to ….
Some factors are taken into consideration (account) ….
Some factors are omitted (neglected) ….
The scientists conclude (come to conclusion) ….
The paper (instrument) is designed for ….
The instrument is widely used ….
A brief account is given of ….
The author refers to …

Reference is made to ….
The author gives a review of ….
There are several solutions of the problem ….
There is some interesting information in the paper ….
It is expected (observed) that ….
It is reported (known, demonstrated) that ….
It appears (seems, proves) that ….
It is likely (certain, sure) ….
It is possible to obtain ….
It is important to verify ….
It is necessary to introduce ….
It is impossible to account for ….
It should be remembered (noted, mentioned) ….

1.4 MY MASTER'S DEGREE PROJECT
(THESIS, PAPER)

1. Memorize the active vocabulary
degree – степень (учёная)
to award/confer a ~ – присвоить степень
to get/take/receive a ~ – получить степень
to hold/have a ~ – иметь степень
first ~ – диплом бакалавра наук
Bachelor's ~ – степень бакалавра
higher ~ – учёная степень
Master's ~ – степень магистра
Doctorate ~ (PhD) – степень кандидата наук
~ of Candidate of sciences (Candidate's degree) – степень кандидата наук
~ of Doctor (Doctor of sciences) – степень доктора наук
dissertation/ thesis – научная работа, диссертация
to defend one's ~ – защитить диссертацию
field of study – область исследований
to graduate from- окончить высшее учебное заведение
to graduate in economics - окончить эконом. факультет
to carry out (conduct) research in the field of...- проводить исследования в области...
to be published in the Proceedings of the Conference- быть напечатанным в сборнике материалов конференции
to work at one's thesis (dissertation) under the guidance (supervision) of ... - работать над диссертацией под руководством...
to work in collaboration with... - работать совместно с...
to survey modern literature on the problem- делать обзор современной литературы по проблеме
The problem of studying ... demands special care in using... –Проблема изучения... требует особого внимания к использованию...
The core of the problem is... - Суть проблемы заключается...

It would be instructive to examine in detail... - Было бы полезно детально изучить...

The object of our investigations is... - объектом нашего исследования является...

...is the subject of our research- ... является предметом нашего исследования

We are engaged in the study of... - Мы занимаемся изучением...

We shall make a thorough study of...- мы подвергнем тщательному изучению...

The aim of the paper is...- Цель данной работы заключается...

The purpose of my work is to examine and investigate... - Цель моей работы заключается в изучении и исследовании...

The primary task is to study... - Первоочередной задачей является изучение...

The conventional approach to this problem is based on... - Обычный подход к этой проблеме основан на...

It is worth analyzing precisely... - Стоит тщательно проанализировать...

One of the most promising problems is believed to deal with... - Считается, что одной из наиболее перспективных проблем является...

It seems essential to emphasize that... - Представляется важным отметить, что...

So far we have discussed... - До сих пор мы обсуждали...

It provides a basis for - Это служит основой...

For (at) the moment... - В настоящий момент...

To do academic work /research- / выполнять научную работу / исследование

To devote oneself to academic / research work- посвятить себя науке

a branch of knowledge- отрасль науки;

an academic work- научный труд

an academic approach- научный подход

department- кафедра

a research worker / a researcher - научный работник

topical - актуальный

analogous - аналогичный

academician - академик

candidate of science - кандидат наук

doctor of science -доктор наук

assistant professor -доцент

Associate Professor at the Department of - доцент кафедры (конкретной)

head of the department - заведующий кафедрой

professor - профессор

rector - ректор

deputy rector - проректор

university administration - ректорат

scientific degree -учёная степень

academic rank -учёное звание

dean -декан

scientific field (branch) - научная область

research work - научно-исследовательская работа

scientific journal - научный журнал

agricultural sciences - с/х науки

natural sciences - естественные науки
to devote oneself to - посвятить себя науке
scientific experience - научный опыт
summary, abstract - реферат, аннотация
to get data (obtain) - получать данные
collect data on ... - собирать данные о
to make a research - проводить исследование
to solve a problem - решать проблему
to do (carry out, conduct) a research - заниматься (проблемой), проводить исследования
to draw up a study plan - составить план исследования
the aim of the research - цель исследования

2. *Useful tips*
Plan your topic as follows:
First, let me introduce myself.
My name is…
I am a master degree student at the department of …
My scientific advisor is Prof….
I work under the guidance of professor...
My tutor is ....
The **field** which you major in and the title of your future thesis
I work in the field of ....
My major interest is in the field of....
I am currently doing my masters degree in ……. studies
I major (*specialize*) in the field of …
The **title** of my future thesis is....
The subject of my research is …
The object of my research is the operation (behaviour/ processes) of ….
(Объект исследования - это носитель проблемы, на который направлена исследовательская деятельность. Предмет исследования - это конкретная часть объекта, внутри которой ведётся поиск (явления, отдельные их стороны, некоторые аспекты и т.д.))
Let me now go into some detail regarding the subject I have mentioned.
I began with the study of **literature** on the subject including some basic works written by…
I have used many different sources of information, such as ...
These problems … are widely discussed (treated) in literature.
There are many papers discussing the state of the art in the development of…
The theory of ….. was constructed and developed by ….
The immediate **aim (goal/purpose)** is to examine the function (behavior/ dynamics) of …
The main aims of your research work and the tasks to fulfill
The main purpose/goal/aim of it is...to find out/to define/to characterize/explore/ to investigate/to analyze/to gain/.....

It is aimed at .....

A current study in our laboratory is addressing the question of ….

The focus of my research is on the relationship between …. and … .

It is very important and interesting to examine (analyze/ evaluate/ describe) the complex interaction between … and …. .

I set myself a **task/ objective** to/of...

the tasks that face us /that we are faced with/are as follows....

Its objectives are the following:

The **methods and techniques** we apply in this research include experiments (observations, laboratory tests, field and pilot plant study ….)

The experimental part of my research will mostly consist of tests to be conducted on …

It is therefore quite encouraging that these methods may be used to solve a number of problems in this instance and get an insight in …

This work is devoted to an important **problem** into which too few scientists have researched until now.

The most challenging problems I have faced with are ...

My study deals in the problems of.../is devoted to the investigation of...

It touches upon the problems of...

Earlier studies of this subject show that the problem has not been yet properly explored.

I consider my work to be **relevant** nowadays because ...

Some of most recent **results** of the research in … make use of the …. and the theory of….

The results may be constructed into a theoretic framework that I am going to describe by systemizing the data obtained in the experiments (observations).

I think they will be of considerable **practical significance**, because …

I expect to obtain the following **results** ...

In the future I'm going to continue my studies and take a postgraduate course

In conclusion I would like to say that ...

Words and word combinations

analysis - анализ, исследование

critical analysis - критический анализ

advanced research - перспективные исследования

basic research - фундаментальные исследования

to be engaged in research - заниматься научно-исследовательской работой

This researches cover a wide field - исследования охватывают широкую область

after the study of the matter - после изучения этого вопроса …

humane studies - гуманитарные науки

history and allied studies - история и родственные ей предметы

a new study of Shakespeare - новая работа /книга/ о Шекспире

pilot study - предварительное, экспериментальное исследование

desk study - чисто теоретическое исследование

thorough examination - a) всестороннее исследование; б) тщательное изучение (материала)

to carry on an investigation - проводить исследовательскую работу

the scientific method of inquiry - научный метод исследования

we must apply .... to find a solution - мы должны применить...., чтобы решить

comparative [experimental] method of investigation – сравнительный [экспериментальный] метод исследования

his method is to compare different versions - его метод состоит в сопоставлении разных вариантов

there are several methods of doing this - существует несколько способов сделать это

ampliative inference - индуктивный метод

a method that is attended by some risk - метод, связанный с некоторым риском

convenient method - подходящий метод

to approximate to a solution of the problem - подходить к решению задачи

To use ... approach(to) - подход

interdisciplinary approach - подход с точки зрения различных наук

We began the work by collecting material -Мы начали работу со сбора материала

we have two problems before us - перед нами две задачи

data for study - материал исследования

laboratory data - данные лабораторных исследований

adequacy of data - достоверность данных

acceptance of a theory - согласие с какой-л. теорией

application of a theory in actual practice - применение теории в практической деятельности

the backbone of a theory - основа теории

to back up a theory with facts - подкрепить теорию фактами

to construct a theory - создать теорию

the results of the experiment contradicted this theory./agreed with the theory - результаты опыта шли вразрез с этой теорией/согласовывались с теорией

3. Answer the questions. Use the following cliché

CLICHÉ (stereotype block of expressions and patterns) for a research work story

1. I'm a Master's degree student ...	1. Я магистрант...
2. My scientific adviser (supervisor) ...	2. Мой научный руководитель...
3. The subject of my research is...	3. Предмет моего исследования...
4. The reasons for my choice are...	4. Причины моего выбора следующие...
5. My investigation has both theoretical and practical parts...	5. Моя научно-исследовательская работа включает в себя как теоретическую, так и практическую части...
6. I'm going to deal with...	6. Я планирую заниматься...
7. I'll make use of... methods...	7. Я собираюсь использовать ... методы...
8. My work requires the collection of a	8. Мне требуется собрать большое

good deal of material...	количество материала для моей работы...
9. Currently I'm busy with collecting theoretical data on my subject.	9. В настоящее время я занимаюсь подбором теоретических данных по моей теме.
10. I have to read articles (monographs, journals) of our and foreign authors.	10. Мне приходится читать статьи (монографии, журналы) наших и зарубежных авторов.
11. One of the main aims of my research work is...	11. Одной из главных задач моей научной работы является...
12. The subject of your research work.	12. Предмет вашего исследования.
13. Results already achieved and the aim of your own research.	13. Цель вашей работы.
14. Significance of your research work in case it is completed successfully.	14. Каково практическое значение конкретно вашей работы?

4. Answer the questions:

List of questions

1. What institute did you graduate from and when?
2. What faculty did you study at?
3. What is your specialty?
4. Have you got a diploma with honors?
5. Are you a Master's degree student?
6. When did you decide to take a Master's degree course?
7. When did you enter (join) the Master's degree course?
8. Why are interested in research work?
9. What personal characteristics do you think are necessary for success in the chosen field?
10. Are you going to take a full time or a correspondence course?
11. Are there any scientists in your family or among you relatives?
12. What do you think will be more difficult for you – to write a theoretical or an experimental chapter? Why?
13. What is the subject of your research? What do you research? What do you study?
14. Do you work at your thesis already?
15. What is the subject of your thesis?
16. Is your research work individual or is it a group research?
17. Where do you take experimental material?
18. Do you know how many parts does a thesis consist of?
19. What scientific degree will you get?
20. Have you read your scientific supervisor's research papers? What are they about?
21. Do you think they will be useful for your dissertation?
22. Is your scientific supervisor helpful? How often do you get to see him?
23. How does your scientific supervisor help you in your research?
24. Have you got any publications? Tell us about the one that you think is the best.

25. Is your investigation (research work) an experimental or theoretical one?
26. What are the main problems in your area of research?

5. *Read and translate*

THESIS

Your dissertation should state the objectives of your investigation, describe your research methods, and present and discuss your results.

(Generally, this is achieved using the *structure* below:

1. Title

You should state:

- the title of the dissertation: *Potassium uptake in potatoes*
- your full name and any academic qualifications you may have: *Hamah Turner B.Sc. (Hons)*
- *a statement in this format:* A dissertation submitted in partial fulfilment of the requirements for *fie* degree of Master of Science in Environmental Geotechnology
- *institution:* The University of Bolton Place: Bolton
- date submitted: *May, 2005*
- name of supervisor (if required): *Supervisor: Joe Bloggs*

2. Abstract

I his is a summary of your thesis condensed into a short paragraph. You should include a brief outline of the following:

- the issues that you have researched and why
- research methods chosen and why
- your results
- your conclusions

3. Introduction

- Introduce the subject of your dissertation and describe your aims and objectives. You should explain the significance and relevance of what you are trying to prove, how you are going to prove it and what methods you will use in the process.
- You should outline the content of each section:
- Chapter 1 will examine the development of Robert Frost s poetry and the factors that influenced it...
- Chapter 2 will analyse the poems that concentrate on Nature being unfriendly and expand upon the theme of darkness....
- Chapter 3 is concerned with the darker side of Frost himself.
- The Conclusion will show that Frost and his poems are one.

4. Literature review

You must critically review relevant past research. Listing summaries of articles in chronological order is not appropriate. You must identify research themes in the literature or analyse papers according to alternative methodologies for comparison. A good literature review is comprehensive, critical, and informative. You should conclude it by identifying your intended contribution to the current literature.

5. Methodology

Development and description of your research framework. This is where you describe

the research methods, date collection and date analysis methods that you have chosen and explain why these methods are appropriate for your research. Its content will differ depending on the particular research undertaken.

6. Results and Discussion

You must describe, display, interpret and evaluate your results. You must also identify and limitations and discuss the strengths and weaknesses of your reported research.

7. Conclusion

This is where you combine all the strands of your argument to give a convincing answer to the question you originally posed. You should be able to justify your conclusion and show how the stages in your reasoning are connected. You should identify any potential future developments for your research topic and if there are any practical implications for management or government policy.

8. Bibliography and references

Your thesis must contain either a bibliography or a bibliography and a reference list according to the expectations of your supervisor. Failing to cite your sources correctly could result in accusations plagiarism and the failure of your dissertation.

9. Appendices

This section should include examples of items you have used to gather evidence for your research as questionnaires, surveys, letters, illustrative material, statistical tables etc.

Similar materials should be included in the same appendix and should be numbered accordingly *e.g.* two different questionnaires should be in the same appendix numbered *Ia* and *Ib*.

Functional language

a) defining key terms
- Such a process is *known as...*
- ***Recession*** *is usually defined as...*
- This combined approach *is called...*
- Lidgerwood *defines* microfinance *as...*

b) making generalizations
- *We tend to/There is a tendency to...*
- ***It is я*** *common/popular/widespread belief/assumption* ***that...***

c) putting forward arguments
- ***An*** *important concern/A key consideration is...*
- *The main point/An important point is...*
- *A critical aspect is...*
- *A second issue/Another issue/A final issue is...*

d) citing other works
- ***Numerous studies*** *show/have shown/indicate/have indicated/suggest/have suggested …*
- ***Byrne and Long (1976)*** *find/have found/suggest/have suggested/argue/have argued* ***that...***

- *Morrison (2002) states/has stated/indicate/has indicated/explain/has explained that...*
- Allan (2000) *describes/illustrates/outlines how...*
- The researcher/scientist/author *indicates/explains* that…

e) giving examples
- A clear/good example can be found/seen in...
- In give/provide an example, *we can look at...*
- *The following example* of Sichuan in China shows/illustrates
- *T*he following section of this essay will look at examples of...

f) *categorizing information*
- The model/example presents/introduces...
- There are *four different* kinds of...
- The first *category of learners* is called...
- The second *category* known as *divergers* is...

g) *describing trends*
- Youth unemployment rose slightly/gradually/steadily/slowly/suddenly/sharply/dramatically *in the first half of the year.*
- *Youth unemployment* rose/increased/climbed/decreased/fell/has risen/has increased/has climbed /has decreased/has fallen *in the first half of the year.*
- *There was/has been* a slow drop/fall/decrease/rise/increase/climb *in...*
- *There was/has been a* slow/gradual/steady/minimal/slight/sudden/dramatic/sharp drop *in...*

h) *making comparisons*
- Sweden spent more in 2006 *compared to* 1975.
- Sweden spent more on R&D *in relation to* Finland.
- *In contrast,* Finland spent much more in 2006 than in...
- *When the comparison is made,* Japan spent more than Finland.
- I he *difference* between Switzerland and the US is not significant.

i) *hedging (уклонение от прямого суждения) language*
- *Generally speaking,* computers provide many benefits for everyone.
- It is widely accepted that...
- In principle,...
- Seemingly, ...
- It is believed that...
- While most of us typically associate *computer crime with...*

6. Before you read Text "Thesis", discuss these questions with your group mates or teacher.
1. What is a thesis?
2. What is the most important part of a thesis?
3. Does a thesis require approval?
4. What is the purpose of the review chapter?

7. Read and translate the Text.

Thesis

Thesis (dissertation) is a monograph, i.e. a self-contained piece of work written solely by the Master's degree student and no-one else. It sets out a certain problem that the candidate has worked on, possibly within a larger team, under guidance of one or more academic advisors. It motivates and defines the problem, reviews existing approaches to the problem, identifies through critical analysis a clear gap for a possible novel academic contribution, and spells out a so-called hypothesis, which is a proposed explanation for the problem or a proposed solution to the problem. The thesis also explains in sufficient detail, and justifies the work undertaken to decide on the hypothesis (or hypotheses as the case may be). This work typically involves a combination of further literature studies, theoretical analysis, experimental design, data collection, carrying out the experiments, data analysis, and drawing conclusions. A good thesis also delineates the limitation of the work done or the conclusions drawn and outlines possible future research directions.

The format of a thesis is not very different from any other formal research dissertation or study paper. However, a thesis requires much more research and evaluation on the topic.

To start a thesis, you will need to submit a written proposal in to your advisor. The length of this proposal will vary, and is dependent upon your advisor's specifications and the topic that the paper is written on. The body of the proposal contains certain elements that must be included.

The most important part of your thesis proposal is coming up with a hypothesis for your research questions. This is where your successful for your research study will begin. In most cases this requires the researcher to do background work ahead of time in order to choose a direction for which his or her thesis should go, as well as the research will need to be done to prove his or her point.

The second stage of the process is actually beginning your thesis. This requires approval of your proposal first. The first chapter will be the basic introduction to your subject, including the reasons why you decided on this topic for your research. The introduce on also takes a look at other work that a researcher has done that is pertinent to the thesis, and what new achievements he or she is trying to do through the study.

The second chapter looks at the literature that deals with the same subject matter. Keep in mind that the literature should only be high quality, and include items such as journals and books. While the review chapter does not directly relate to the thesis work-itself shows the reader what the researcher was thinking when he or she began working on the research topic.

The third chapter looks at the research question with a detailed discussion of the thesis statement. It will also include the information like the statement of the problem, and the hypothesis and predictions. It summarizes what the researcher is trying to accomplish through the course of the study.

The fourth chapter of your thesis takes a look at your research and the method that you used when coming up with the data. This chapter can be very different from one thesis to another, as it will depend on what method the research used, including

comparative analysis, scientific technique, regression analysis and more. This chapter also includes information such as the variables that used, as well as why you used them and the theories you had behind choosing them.

The fifth chapter looks at the study that has been done so far and what results were obtained during this study. It also looks at what methodology was applied during the study.

The sixth chapter looks at the results in greater detail. It will also evaluate the results against the previous information already known or what the researcher has discovered. The limitations of the study are also discussed in this chapter, which includes the factors that the study did not look at or incorporate. It can also include the information about the research that the author discovered that was not related to the original thesis and hypothesis because it was not addressed with the original specifications of the variables.

The seventh chapter is the critical analysis. This includes the information that was discovered during the research, as well as the areas of the study that may be open to further research in the future.

The final chapter sums up the results of the research and allows the author to give his or her interpretations and thoughts on the study itself.
Writing your thesis is not the end of the study. You will also be required to put together a defense of your research, which entails being able to verify all of the information that is included in your thesis. To do this, you will be put in front of a panel of experts who will question your research. Therefore, you need to make sure that your evidence is accurate, proves what it needs to, is relevant to the issue, can be easily understood, and that it is convincing enough that the readers will believe what you have to say.

8. Complete the following sentences with details from the text.
1. The thesis sets out _____.
2. You will need _____ to begin a thesis.
3. The introduction chapter studies _____.
4. The methodology you applied is discussed in _____.
5. The critical analysis chapter includes the information _____.

9. Locate the following details in the Text. Give the line numbers.
1. In which lines does the author explain what dissertation writing involves?
2. Where in the Text does the author mention the statement of the problem in the dissertation?
3. At what point in the Text does the author discuss the research methods to be used in a dissertation?
4. Where in the Text does the author explain what scientific evidence is characteristic of?

10. Underline the detail that is NOT mentioned in the Text in each of the sentences below.
1. A dissertation motivates and defines the problem that the candidate has worked on independently, defines the hypothesis, and outlines future research directions.

2. The chapter studying the thesis statement includes the hypothesis, predictions, and literature review.

3. The factors that the study did not incorporate and the results obtained are discussed in the sixth chapter.

11. Answer the following detail questions.

1. According to the Text, a hypothesis is

a) a possible academic contribution.

b) a proposed solution to the problem.

c) a theoretical analysis.

2. According to the Text, the length of a written proposal depends on

a) the number of certain elements to be included.

b) the topic specifications.

c) your advisor's recommendations.

3. According to the Text, what does the first chapter look at?

a) the reasons for choosing a particular topic for the research

b) the achievements the candidate has done

c) the details of the research

4. According to the Text, the second chapter relates to

a) the thesis work itself.

b) the information discovered during the research.

c) the researcher's ideas at the initial stage of the research.

5. According to the Text, what does the eighth chapter include?

a) the research methods applied

b) the research summary

c) the critical analysis

GIVING PRESENTATIONS

- Have you ever given presentations in English?
- Was it a successful presentation? Why? Why not?
- What examples of good presentations can you give
- What examples of good presentations can you give
- What is important when you present something? Give your tips

12. Compare your tips with those that presented in the table.

Presentation tips

Structure	Practice	Body Language
Have a logical order: introduction, middle with your main points & a conclusion	Practice beforehand in front of a mirror, with a recorder or an front of a friend	Smile, make eye contact, stand up straight & move around a bit. Don't hide behind the podium!
Notes & Handouts Have brief notes on postcard sized cards. Have a handout that the audience can take away afterwards	**PRESENTATION SKILLS**	**Speech** Speak clearly, confidently, concisely & not too fast. Use everyday language rather than jargon

PowerPoint	Interaction	Nervousness
Keep slides dean & simple. Don't have lots of text on each slide. Use charts, diagrams & pictures	Build a rapport with your audience. Get them involved by asking & encouraging questions. Use humor if appropriate	It's normal to be a bit nervous: this helps make you more energized. Preparation Si practice will reduce nerves!

13. Starting your presentation

1. The project manager of a construction company is giving a presentation to his colleagues. Put the sentences in the right order. Then listen and check.

a) *This morning I'd like to update you on the current status of work at the construction site. The information I give you today should help you with planning your next steps.*

b) *For those of you who don't know me, my name is Gordon Selfridge. Let me just write that down for you. OK. I'm the project manager in charge of the Bak Tower building project in Dubai.*

c) *I've divided my presentation into three parts.*

d) *Hello, everyone.*

e) *Then I'll move on to the problems we're facing with our local suppliers.*

f) *First of all, let me thank you for coming here today. I'm aware that you're all busy preparing for the annual meeting this week, so I really appreciate you taking the time to be here.*

g) *I'll start off by showing you some photos of the building site and discussing the progress we've made since January.*

h) *My talk should take about 30 minutes. Please feel free to interrupt me at any time with questions.*

i) *I'll end with some ideas for reducing labour costs that we've been looking into.*

j) *Oh, and don't worry about taking notes. I'll be handing out copies of the PowerPoint slides.*

14. Read the text

Preparing research presentation

Presenting research results is a vital aspect of postgraduate work. It is an exciting time in a postgraduate student's degree program because it represents the culmination of many hours of hard work. The communication of research findings provides a valuable opportunity to inform others of a current investigation and it can lead to future speaking opportunities at conferences, grants for future research projects, school and business meetings and offer natural connections to new job opportunities.

Presenting academic material requires careful preparation and planning to effectively communicate to your audience. It is important to consider the diversity of expertise within a group of educators. Audiences will usually contain people who are experts in your subject area, others who have a general knowledge of the topic and the remainder who have basically little or no knowledge. How do you plan to effectively reach such a wide range of knowledge levels within one group? A popular communication strategy is to directly address the experts while integrating relevant and interesting illustrations and ideas into the presentation that make the results

accessible to entire audience. It is a multidimensional speaking technique that demonstrates respect for those who attend your presentation. Some essential elements for research presentations are as follows.

__Problem description and documentation.__ The problem statements should be presented in descriptive language that the audience can easily understand. The presentation should include several key studies from the literature review to provide solid support for the rationale for pursuing your research problem. There is a real temptation to share a host of studies but it tends to distract people who generally are more interested in understanding why an individual has undertaken a particular study.

__Solution strategy.__ Presenting possible solutions to the problems under study is a vital part of the research process. It is important to present information in a concise manner. Therefore, stress three or four aspects that will help you keep your presentation focused and reduce potential resistance to your ideas.

__Analysis of results (anticipated and otherwise).__ Interpretation of qualitative and quantitative data is always a very challenging task. Reviewing your results in light of the concepts of significance, generalizability, reliability and validity is recommended. The generalizability of a research project requires you to ask specific questions which examine the degree of broader applicability of your particular study.

__Recommendations for change.__ As you prepare your presentation, take the time to consider the questions for those who might be skeptical of your findings, and share recommendations for changes. A research project may:

- address gaps in knowledge by investigating an area of research that fills a void in existing information;

- expand knowledge by extending research to new ideas and practices;

- replicate knowledge by testing old results with new participants or new research sites;

- add voices of individuals to knowledge, individuals whose perspectives have not been heard or whose views have been minimized in our society.

__Solicitation of audience feedback.__ The audience can be a good resource for advice and feedback on your presentation and a forum to enhance professional knowledge and practices. Naturally, researchers are somewhat anxious about the personal risks involved having their project being scrutinized by others. Audience feedback can help individuals identify shortcomings or flaws in their research project which can be addressed in a future journal article or in future investigations. Dialogue over research results can provide the basis for a deeper understanding about current interpretations of educational practices and theories. Postgraduate students should be encouraged by the fact that their presentations will give others the opportunity to publicly affirm the positive elements and educational contributions of your work. The research project can be a good resource for sharing valuable knowledge with the academic community. It is wise to investigate potential speaking opportunities at your school, national and international conferences. Today's technology and educational conferences often provide websites with specific details about their expectations for papers. As you explore various speaking opportunities, it is a good time to examine publication of your research results in journals, magazines and newsletters (print and online).

Research presentations are excellent opportunities to demonstrate originality and inform others of valuable investigation findings. Contemporary educators appreciate quality work because it encourages improvement in educational practices and refinement of research skills [Muirhead, 2004].

15. Complete the following sentences with details from the Text.
1. Presenting research results provides valuable information for others, some speaking skills at conferences, and_____.
2. Audiences usually contain people who have a general knowledge of your subject area,_____, and those who have little or no knowledge of the same.
3. It is recommended that you should review your research findings in terms of reliability, validity, and _____.
4. Audience feedback can help researchers identify _____shortcomings, and some risks to be involved.
5. It is important to study potential speaking opportunities at international and national conferences, and _____.

16. Underline the detail that is NOT mentioned in the Text in each of the sentences below.
1. The audience can be a good forum to enhance professional knowledge, practices, and experience.
2. Postgraduate students' presentations give others the opportunity to affirm the educational contributions, developments and positive elements of your research.
3. Research presentations are good opportunities to inform others of valuable investigation findings and demonstrate originality and novelty of your study.

17. Answer the following detail questions.
1. According to the Text, the presentation should include the literary review
a. to do your research.
b. to provide support for the audience.
c. to support your research problem.
2. According to the Text, the information should be presented
a. in full.
b. to the point.
c. in a wordy manner.
1. According to the Text, the generalizability of a research project requires you to ask specific questions which examine
a. the use of research results.
b. the significance of your research.
c. the qualitative and quantitative data of your research.
2. According to the Text, the research project can be a good resource for sharing valuable knowledge with
a. your school.
b. international conferences.
c. academy.

3. According to the Text, contemporary educators appreciate quality work because it improves

a. research skills

b. practices in education

c. investigation findings.

18. *Побеседуйте по-английски. Используйте следующие вопросы и утверждения:*

Use the following questions and statements:

1. What methods do you apply in your research? And why?

2. What are you going to prove in your research?

3. How can you formulate your hypothesis?

4. How do you plan your experiments?

5. How often do you record data during the experiment? (every hour, every two hours, etc).

6. What instruments and equipment do you use in your investigation? And why?

7. What views and data can your experiments (or research) prove or refute?

8. What illustrations are you preparing to demonstrate the results of your investigation?

9. What conclusions will you make if the results of your research are positive/negative?

10. What are the merits and demerits of the investigation that you have already carried out?

11. How will you continue your investigation? And why?

12. The hypothesis fits experimental data.

13. The research probes in the various aspects of the subject.

14. We experimented with the new materials.

15. We hope to find the answer to this problem.

16. The work was subjected to criticism.

17. Out of his work came a substantial knowledge.

18. The theory and the results are too extensive to be given here.

19. The experimental results were analyzed with the help of high-speed computing machines.

20. I am afraid I don't know for certain if there are any direct (adequate, reliable) data regarding ... I believe some information is available though I don't know what it is...

21. Yes, as far as we know there are some very interesting and, I dare say, very encouraging data about..., though at the moment I am not quite prepared to speak about them in detail.

22. Well, there must be rather adequate data at present since studies of the problem have been in progress for several years now (have long been under way)...

23. What is the problem you are investigating now (interested in)?

24. What does it deal with?

25. What is the core of the problem?

26. Is it sufficiently studied?

27. Does it involve certain difficulties?

28. What aspects does it include?

29. What kind of problem does it refer to?
30. Does the problem require a great deal of investigation?
31. Has it been discussed for a long time or is it a newly raised problem?
32. Is there a lot of information on this problem?
33. What foreign literature have you read on the problem?
34. Will it take much time to clear up all the aspects of the problem?

Деловое письмо на английском приглашение на конференцию

В случае с приглашением на конференцию Ваше письмо будет длиннее предыдущего, поскольку вам необходимо заложить в него больший объем информации. Соответственно, изменится и его структура.
1. Обращение.
2. Информация о конференции (название).
3. Цели конференции.
4. Даты и место проведения, спонсоры.
5. Технические детали (визы, проезд, доклады и т.д.)
6. Информация о регистрации с контактами ответственного лица.
7. Заключительная часть.

Dear Colleagues,

You are cordially invited to participate in the upcoming World Conference on Information Technology. The aims of the conference are to bring together researches and practitioners in an effort to lay the ground for future collaborative research, advocacy, and program development as well as to educate the adequate professionals in information industry. The World Conference is scheduled to take place from October 14th – 16th 2018 in… (the venue, the city and the country) under the auspices of…Foundation. Note that all interested delegates that require entry visa to enter… (the country) to attend this conference will be assisted by the organizational committee. Free air round trip tickets will be provided to all registered participants.

The Workshop welcomes paper presentations from any interested participant willing to present papers during the meeting.

For any further information you are to contact the conference Registrar at:
E-mail:
Phone:
Sincerely,
Michael Faraday
Activities Coordinator
E-mail:
Phone:

Уважаемые коллеги,

Сердечно приглашаем Вас принять участие в предстоящей Всемирной конференции по информационным технологиям.

Цель конференции - собрать вместе исследователей и практиков в целях создания основы для будущих совместных исследований, пропаганды и разработки программ, а также для обучения адекватных специалистов в области информационной индустрии. Всемирная конференция будет проходить с 14 по

16 октября 2018 года в ... (месте, городе и стране) под эгидой ... Фонда. Обратите внимание, что всем заинтересованным делегатам, которым требуется въездная виза для въезда в... (страна) для участия в этой конференции, будет помогать организационный комитет. Всем зарегистрированным участникам будут предоставлены бесплатные авиабилеты в оба конца. Семинар приветствует бумажные презентации от любого заинтересованного участника, желающего представить свои документы в ходе встречи.

За любой дополнительной информацией обращайтесь к Регистратору конференции по:

Эл. почта:

Тел.:

Искренне,

Майкл Фарадей

Координатор Мероприятия

Эл. почта:

Тел.:

РАЗДЕЛ 2. ПРОФЕССИОНАЛЬНАЯ СФЕРА ОБЩЕНИЯ
MY CAREER

1. Read the text and compare your answers.

What is an Academic Career?

There are three main routes you could consider when following an academic career. These are:

· Research-only role, where the bulk of your time is spent conducting research with limited or no teaching commitment

· Teaching-only role, where majority of your time is for teaching with little or no time specifically allocated for research

· Research and teaching position, i.e. a lectureship, where you will be expected to both teach and conduct research.

In reality, most people will progress through a number of these roles when pursuing an academic career. The route you take will depend on your interests, the funding and opportunities in your subject area, and the job market at certain points in your career. It tends to be more common to have a long-term research-only career in the sciences as at present there is more funding available for research-only positions.

You should try to be clear about where your interests lie and what opportunities are available in your subject area. Many academic jobs will be a balance of research, teaching and administration but the percentage of time spent on each will vary greatly. Factors that will affect how you spend your time include:

· Your role, e.g., if you are employed as a research or teaching fellow

· Your level of experience, as junior lecturers will often have a greater teaching load than more senior lecturers

· The type of institution as lecturers at research-intensive universities may be expected to spend more time on research than those employed in teaching- focused institutions.

Some of the activities you may be expected to contribute to during an academic career are as follows:

Research

As a Master's degree student you will be familiar with the range of activities that come

·   identifying suitable funding bodies and preparing proposals to apply for funding
·   conducting research (reading, collection and interpretation of data, gathering of information from relevant sources, etc.)
·   disseminating research findings through publishing
·   speaking at conferences
·   supervising postgraduate research students
·   managing resources (research budget and possibly research staff).

Teaching

You may already have had some experience of teaching or tutoring. As an academic member of staff teaching responsibilities can include:

·   design of courses and development of curricula
·   preparing notes and material for lectures
·   delivering lectures to undergraduates and postgraduates
·   preparing for and facilitating discussion at small group tutorials
·   marking / assessing students work
·   supervising Honors students' dissertation research.

Administration

Some examples of the types of administrative roles academic staff may undertake include director of studies, admissions tutors, course organizer, or open-day coordinator / school liaisons officer.

Academics are also often members of several committees both within their department or school (e.g., staff-student liaison, health & safety), their college (e.g., library, equality and diversity, undergraduate studies) and/or across the university (e.g., quality, scholarships and student funding, recruitment and admissions strategy). Administrative tasks associated with these roles include:

·   writing the course handbook
·   designing exam questions and answers (and getting these validated through the relevant committees)
·   preparing a schedule of talks for visiting prospective students
·   writing references for students seeking employment or further study
·   screening applications for admission to postgraduate courses
·   reading papers relevant to your committee membership and submitting your comments for discussion at meetings.

Planning your career

JOB INTERVIEW IN ENGLISH

- Have you ever gone through a job interview? What questions were you asked?
- Have you ever gone through a job interview in English? How did you manage? What questions were you asked?

Study the most common sample questions at the job interview and the answers to them (pay attention to comments given in brackets).

1. How would you describe yourself?

(Also: What are your strengths / positive traits? Why should we hire you?)

• *I consider myself hardworking / reliable / dependable / helpful / outgoing / organised / honest/ cooperative.*

• *I'm a team-player /an experienced team-leader /a seasoned (experienced) professional / a dedicated worker.*

• *I'm good at dealing with people / handling stress.*

• *I pay attention to details.*

• *I understand my customers' needs.*

• *I learn quickly and take pride in my work.*

• *I love challenges and getting the job done.*

2. What kind of qualifications do you have?

• *I graduated in IT from the University of London.*

• *I hold a master's degree (MA) / a bachelor's degree (BA) in Modern Languages from the University of New York.*

• *I took a one year accounting training program at Oxford College.*

• *I haven't done any formal training for this job, but I have worked in similar positions and have ten years of experience in this field.*

3. Why did you leave your last job?

• *I was laid off/ made redundant, because the company relocated / downsized / needed to cut costs.*

• *I resigned from my previous position, because I didn't have enough room to grow with my employers.*

• *I wanted to focus on finding a job that is nearer to home / that represents new challenges / where I can grow professionally / that helps me advance my career.*

4. What do you do in your current role?

• *I'm responsible for the day-to-day running of the business/for recording and conveying messages for the departments.*

• *I ensure that high standard of customer care is maintained.*

• *I liaise with the Business Development and Business Services Units.*

• *I deal with incoming calls and correspond with clients via e-mails.*

• *I'm in charge of the high-priority accounts.*

5. What relevant experience do you have?

(It might be a good idea to revise Present Perfect Simple and Continuous to talk about experiences you've had/ actions that you started in the past and are still in progress.)

• *I have worked as a Sales Representative for several years.*

• *I have good organizational skills as I have worked as an Event Organizer / Personal Assistant for the last six years.*

• *I have great people skills: I've been working in Customer Service and been dealing with complaints for five years.*

6. Why would you like to work for us?

• *I would like to put into practice what I learned at university.*

• *I would like to make use of the experience I have gained in the past ten years.*

• *I believe that your company will allow me **to grow both professionally and as a person***.

• ***I've always been interested in*** *E-Commerce /Marketing / Computer Programming and **your company excels** (is one of the best) in this field.*

7. What are your weaknesses / negative traits?

• *I'm a **perfectionist** and I may be **too hard on myself** or my co-workers sometimes.*

• ***I might need to learn to be more flexible when things are not going according to plan. This is something I'm working on at the moment.***

• *I occasionally **focus on details** instead of looking at the bigger picture. I'm learning how to **focus on the overall progress** as well.*

8. When can you commence employment with us?

(When can you start work?)

• *I will be **available for work** in January, next year.*

• ***I can start immediately.***

• *I have to **give three weeks' notice to** my current employer, so the earliest I can start is the first of February.*

9. Do you have any questions?

• ***What would be*** *the first project I 'd be working on **if I was offered the job**?*

• *Who would I **report to**? Who would I be **working closely with**?*

• *Are there any **benefits** your company offers its employees?*

• *When will I get an answer? **How soon can I start**?*

Additional sample questions

Questions about your Qualifications

What can you do for us that someone else can't do?

What qualifications do you have that relate to the position?

What new skills or capabilities have you developed recently?

Give me an example from a previous job where you've shown initiative. What have been your greatest accomplishments recently?

What is important to you in a job?

What motivates you in your work?

What have you been doing since your last job?

What qualities do you find important in a coworker?

Questions about your Career Goals

What would you like to being doing five years from now?

 How will you judge yourself successful? How will you achieve success? What type of position are you interested in?

How will this job fit in your career plans?

What do you expect from this job?

Do you have a location preference?

Can you travel?

What hours can you work?

When could you start?

Questions about your Work Experience

What have you learned from your past jobs?

What were your biggest responsibilities?

What specific skills acquired or used in previous jobs relate to this position?

How does your previous experience relate to this position?

What did you like most/least about your last job?

Whom may we contact for references?

Questions about your Education

How do you think your education has prepared you for this position?

What were your favorite classes/activities at school?

Why did you choose your major?

Do you plan to continue your education?

Watch the video where you will be given some tips about going through a job interview in English. What tips will be mentioned?

VIDEO

Pair work:

Imagine you are invited for a job interview. Role play this situation.

Student 1 An interviewer

Student 2 An interviewee

WRITING CV AND LETTER OF APPLICATION (Covering letter)

If you want to apply for a job you should present the information about yourself correctly. You can do this with the help of CV.

Parts of a typical CV

Curriculum Vitae

Profile

Education

Experience

Computer skills

Languages

Nationality

Marital Status

Referees:

Think about your personal data and make your own CV

Together with your CV you should write a covering letter. Here you are given some instructions on how to do this.

Read the instructions and answer the following questions:

• What is the covering letter for?

• What parts does it contain?

• What recommendations are given to you?

Writing a covering letter

Your covering letter could make the difference between getting a foot in the door or having it slammed in your face.

Covering letters are not just sent as a courtesy, but are an introduction to your potential employer. They are designed to complement your CV and provide extra information about you. The covering letter is the first impression a potential employer will have of you and without a good impact, they may not progress far with your CV.

Introducing yourself - making an impact

A covering letter should be concise and ideally no more than three paragraphs long. It needs to introduce you to the potential employer, say what you want to do for the employer, and show how and why you are suited for that particular work. Its main aim is to get your CV read.

The style of the covering letter should be reasonably formal and businesslike and match the CV or application form you are sending. It should be typed using a clear font and on good quality, plain white or cream paper, preferably the same as the CV. If you are emailing it, make it look business-like.

• Always write to a named individual, whether you are applying for a job or writing a speculative letter. If you don't know who to address the letter to, use your initiative and contact the company to find out the name of the relevant person. Make sure you check the spelling of their name, no one likes to have their name spelled incorrectly.

• The opening paragraph should let the reader know why you are writing to them. If you are writing to apply for a position with their company, make clear which job you are applying for and where you saw the advertisement, give the title and date of the publication that the vacancy was advertised in. For speculative letters outline what kind of work you are looking for.

• You need to show an interest in the position you are applying for and that you have some knowledge of the employer. Find out about the company by looking for other advertisements it may have, search the internet for its website, look through the company's literature and scan business journals and newspapers for other general information. Refer to any recent news about the company, this will show you understand what the company is about.

• Explain why you want to work there and emphasize what you can do for the company. Avoid using phrases like 'I think I could gain valuable experience with your company' or 'this is an area of my skill I have always wanted to develop'. The employer will hire you because of what you can do for the company, not because of what you think you can get from working there. Be keen, but genuine and avoid using cliche phrases.

• Don't state the obvious, e.g. 'I am writing to apply for the position, as you will see from my CV' etc. Rather reword the opening of each paragraph to get straight to the point, e.g. I am confident that my legal experience would make me a suitable candidate for this position and have attached my CV for further reference.

Why should you get the job?

Paragraph two needs to tell the employer, in more detail, why you are suited to the job and what skills you have got to offer. Why would the employer benefit from taking you on? This is the most important section of the covering letter and will probably make an employer decide whether to look at your CV or not. You need to flag up two or three of your key selling points and give some concrete information on the skills and experience you have.

Make sure you choose points that relate to the job you are applying for so you can match your skills to their needs. The covering letter also gives you a chance to show off skills that you might not be able to get across in the CV, such as maturity, teamwork or interpersonal skills. Make sure everything you say about your skills and experience in your covering letter is backed up by evidence in your CV.

Positive endings

Don't let your letter fizzle out at the end with just a bland 'yours sincerely'. Finish the letter with a strong, proactive phrase which sets the scene for the next stage - being called in for an interview, e.g. 'I am available for interview at your convenience and look forward to meeting you'. If you have addressed the letter to a named person (and you should have done), you should end the letter with Yours sincerely, if you wrote Dear Sir or Madam, it should end with Yours faithfully.

Point out several useful phrases that you can use in your covering letter.

- Look at the example of a covering letter.
- Does it correspond to the instructions given above?
- What should you add to the letter to make it better?

Dear Mr Sorefoot

Please find enclosed my completed application form for the above position. As you will see from my form, I have ten years experience with Bates Retail as a Sales Manager.

I look forward to hearing from you and hope that you will be able to invite me for an interview.

I would very much welcome an opportunity to discuss my application in greater detail and convince you that I am the right person for the job.

Yours sincerely Frances Slimwaist

You are looking for a job. Find in the Internet or in the newspaper an advertisement of a job you would like to have. Write your covering letter to apply for a job.

Useful phrases:

I wonder if you would be so {kind\good} as to...
Will you be so kind as to...
Will you kindly...
I {shall\should} be {happy/glad/pleased} if you...
We are so {happy glad [pleased} to...
We {will\would} be most {happy glad [pleased} to...
I cannot tell you how {happy\glad\pleased} I am to...
I have much pleasure in... It gives me great pleasure to...
It {is\was\would be} a great pleasure (to me) to...
It is a great honor and pleasure to...
I enclose {here with/herein}...
You will find {enclosed/with this letter}...
Please find enclosed...
Attached to this letter you will find...
I am very glad of the opportunity to give my {attention\consideration} to...
I am very grateful to you for giving so much attention to...
I am really happy that I can offer you my {attention\consideration} to...
I hope to hear from you soon and remain with kindest personal regards.
I hope to receive your favorable reply.
We look forward to hearing from you.
I am looking forward to hearing you soon.

We look forward to the opportunity {of + [gerund]|that}...
I look forward to the possibility {of + [gerund]| that}...
We look forward to welcoming you in this country.
I look forward to the pleasure of hearing you.

2.3 Технологии в моей профессии
Advantages and disadvantages of technology
Work with your partner and discuss the questions
- What are the three items of technology you use most often?
- How important is technology for you?

Work in small groups. Do you agree with the following statements?
- People rely too much on technology nowadays.
- Technology can solve all the world's problems.
- Technology often lead to social and environmental problems.
- Technology does not make people's life better.
- The amount of technology in developed countries has a negative influence.

1. Прочитайте текст и скажите, как вы понимаете термины «информационное общество» и «компьютерная грамотность».

computer literacy - компьютерная грамотность
problem-solving device - устройство, обеспечивающее решение задачи
be aware of - понимать, сознавать
opportunity - возможность
basics - основы
application - применение, использование
to restate - пересматривать, переосмысливать
significant - значительный
achievements - достижения
computing - вычисление, счёт; работа на компьютере
to embrace - охватывать
dimension - измерение
instruction - команда, инструкция, указание
to direct the operation - направлять работу
to process - обрабатывать
subscription magazine - журнал по подписке
data processing - система обработки данных
store manager - директор магазина
to have much in common - иметь много общего

Text 1. COMPUTER LITERACY

Informed citizens of our information-dependent society should be computer-literate, which means that they should be able to use computers as everyday problem-solving devices. They should be aware of the potential of computers to influence the quality of life.

There was a time when only privileged people had an opportunity to learn the basics, called the three Rs: reading, writing, and arithmetic. Now, as we are quickly becoming an information-dependent society, it is time to restate this right as the right

to learn reading, writing, and computing. There is little doubt that computers and their many applications are among the most significant technical achievements of the century. They bring with them both economic and social changes. "Computing" is a concept that embraces not only the old third R, arithmetic, but also a new idea — computer literacy.

In an information society a person who is computer-literate need not be an expert on the design of computers. He needn't even know much about how to prepare programs, which are the instructions that direct the operations of computers. All of us are already on the way to becoming computer-literate. Just think of your everyday life. If you receive a subscription magazine in the post office, it is probably addressed to you by a computer. If you buy something with a bank credit card or pay a bill by check, computers help you process the information. When you check out at the counter of your store, a computer assists the checkout clerk and the store manager. When you visit your doctor, your schedules and bills and special services, such as laboratory tests, are prepared by computer. Many actions that you have taken or observed have much in common. Each relates to some aspect of a data processing system.

2. Ответьте на вопросы и выполните задания, используя информацию текста.

1. What does "a computer-literate person" mean? 2. Are you aware of the potential of computers to influence your life? 3. What do the people mean by "the basics"? 4. What is the role of computers in our society? 5. What is "computing"? 6. What is a program? 7. Prove that we all are on the way to becoming computer-literate. 8. Give examples of using computers in everyday life.

3. Прочитайте, переведите и запомните следующие выражения.

An information-dependent society; a computer-literate citizen; an everyday problem-solving device; to be aware; to influence the quality of life; to have an opportunity; to learn the basics; to learn computing; the most significant technical achievements; to embrace computer literacy; to prepare programs; to direct the operations of a computer; to be on the way of becoming computer-literate; to process information; to have much in common; a data processing system.

4. Вспомните образование и случаи употребления the Past Simple Tense.

А. *Назовите три формы следующих неправильных глаголов.*

To be, to have, to mean, to learn, to become, to bring, to know, to think, to buy, to pay, to take, to do, to begin, to give, to make, to keep, to get, to read, to show.

В. *Преобразуйте следующие предложения в Past Simple.*

1. Many people have an opportunity to use computers. 2. There is no doubt that computers solve problems very quickly. 3. Instructions direct the operation of a computer. 4. Computers bring with them both economic and social changes. 5. Computing embraces not only arithmetic, but also computer literacy. 6. It is well-known that computers prepare laboratory tests. 7. Those persons are computer literate and think of buying a new computer. 8.   They receive a subscription magazine once a month. 9. My mother is ill and visits her doctor every other day. 10. Experts know much about how to prepare programs.

5. Прочитайте текст 2 и скажите, что такое компьютер и каковы его основные функции.

intricate — сложный, запутанный

electronic circuit— электронная цепь (схема)

to operate switches — приводить в действие переключатели

to store numbers — запоминать числа

to manipulate — управлять; обращаться; преобразовывать

to input / to feed in — вводить (информацию)

to turn on = to switch on — включать

to turn off = to switch off — выключать

to process data — обрабатывать данные

to supply — подавать, вводить; снабжать, обеспечивать

addition — сложение

subtraction — вычитание

division — деление

multiplication — умножение

exponentiation — возведение в степень

user — пользователь

input device — устройство ввода

disk drive — дисковое запоминающее устройство, дисковод

tape drive — запоминающее устройство на магнитной ленте

cathode-ray tube — электронно-лучевая трубка

to make decisions — принимать решения

instantaneously — мгновенно, немедленно

Text 2. WHAT IS A COMPUTER?

A computer is a machine with an intricate network of electronic circuits that operate switches or magnetize tiny metal cores. The switches, like the cores, are capable of being in one or two possible states, that is, on or off; magnetized or demagnetized. The machine is capable of storing and manipulating numbers, letters, and characters (symbols).

The basic idea of a computer is that we can make the machine do what we want by inputting signals that turn certain switches on and turn others off, or magnetize or do not magnetize the cores.

The basic job of computers is processing of information. For this reason computers can be defined as devices which accept information in the form of instructions, called a program, and characters, called data, perform mathematical and / or logical operations on the information, and then supply results of these operations. The program, or part of it, which tells the computers what to do, and the data, which provide the information needed to solve the problem, are kept inside the computer in a place called memory.

It is considered that computers have many remarkable powers. However, most computers, whether large or small, have three basic capabilities.

First, computers have circuits for performing arithmetic operations, such as: addition, subtraction, division, multiplication, and exponentiation.

Second, computers have a means of communicating with the user. After all, if we couldn't feed information in and get results back, these machines wouldn't be of much use. Some of the most common methods of inputting information are to use terminals, diskettes, disks, and magnetic tapes. The computer's input device (a disk drive or tape drive) reads the information into the computer. For outputting information two common devices used are: a printer, printing the new information on paper, and a cathode- ray-tube display, which shows the results on a TV-like screen.

Third, computers have circuits which can make decisions. The kinds of decisions which computer circuits can make are not of the type: "Who would win the war between two countries?" or "Who is the richest person in the world?" Unfortunately, the computer can only decide three things, namely: Is one number less than another? Are two numbers equal? and, Is one number greater than another?

A computer can solve a series of problems and make thousands of logical decisions without becoming tired. It can find the solution to a problem in a fraction of the time it takes a human being to do the job.

A computer can replace people in dull, routine tasks, but it works ac-cording to the instructions given to it. There are times when a computer seems to operate like a mechanical "brain," but its achievements are limited by the minds of human beings. A computer cannot do anything unless a person tells it what to do and gives it the necessary information; but because electric pulses can move at the speed of light, a computer can carry out great numbers of arithmetic-logical operations almost instantaneously. A person can do the same, but in many cases that person would be dead long before the job was finished.

6. Ответьте на вопросы, используя информацию текста.

1. What is a computer? 2. What are the two possible states of the switches? 3. What are the main functions of a computer? 4. In what way can we make the computer do what we want? 5. What is the basic task of a computer? 6. In what form does a computer accept information? 7. What is a program? 8. What are data? 9. What is memory? 10. What three basic capabilities have computers? 11. What are the ways of inputting information into the computer? 12. What is the function of an input device? 13. What devices are used for outputting information? 14. What decisions can the computer make? 15. What are the computer's achievements limited by?

7. Найдите в тексте 2 английские эквиваленты следующих слов и словосочетаний.

Сложная сеть электронных цепей; управлять (приводить в действие) переключателями; возможные состояния; хранить (запоминать) числа; обрабатывать символы; посредством ввода сигналов; включать; выключать; размагничивать сердечники; обработка информации; информация в виде команд; символы, называемые данными; выполнять математические операции; выдавать результаты; обеспечивать необходимую информацию; иметь замечательные возможности; основные свойства; сложение, вычитание, деление, умножение; возведение в степень; средства для общения с пользователем; устройство ввода; дисковод; считывать информацию; вывод информации; катодно-лучевая трубка; принимать решения; выполнять тысячи логических операций; находить решение задачи; значительно меньший

промежуток времени; человек; нудная рутинная работа; в соответствии с введённой программой; вырабатывать свои суждения; возможности ограничены программой, заложенной в него человеком; дать требуемую информацию; электрические импульсы; со скоростью света; мгновенно производить огромное количество математических операций.

8. Составьте пары или группы близких по значению слов из перечня слов, приведенных ниже.

Например, А. to perform, to exercise, to carry out;
*   B. a man, a person, a human being.*

Verbs: to turn on, to provide, to type, to accept, to help, to learn, to observe, to call, to tell, to keep, to feed, to solve, to relate, to switch off, to communicate, to receive, to supply, to switch on, to assist, to print, to study, to input, to turn off, to decide, to store, to say, to name, to watch.

Nouns: work, machine, fundamentals, display, application, capabilities, job, storage, screen, state, basics, use, concept, specialist, journal, character, memory, idea, expert, magazine, position, symbol, command, data, solution, device, instruction, powers, information, decision.

Adjectives: basic, tiny, common, small, main, significant, routine, general, remarkable, uninterested, intricate, important, wonderful, complex, little.

Adverbs: rapidly, probably, instantaneously, in a moment, quickly, perhaps.

9. Выполните перевод текста 3.

to maintain records — вести учит
deposits and withdrawal — вклады и изъятие (выемка)
guidance — наведение (на цель); управление; руководство
on-board environment — бортовое окружение
pattern recognition — распознавание образов

Text 3. APPLICATION OF COMPUTERS

At present a great deal of the work force of most countries is engaged in creating, processing, storing, communicating, and just working with in-formation. Computers have become commonplace in homes, offices, stores, schools, research institutes, plants.

The use of computers in business, industry, and communication services is widespread today. Computer-controlled robots are able to improve the quality of manufactured products and to increase the productivity of industry. Computers can control the work of power stations, plants, and docks. They help in making different decisions and in management of economy.

The work of banks depends upon computer terminals for millions of daily operations. Without these terminals, records of deposits and withdrawals would be difficult to maintain, and it would be impossible to make inquiries about the current status of customer accounts.

Computers form a part of many military systems including communication and fire control. They are applied for automatic piloting and automatic navigation. Space exploration depends on computers for guidance, on-board environment and research.

Computers find application in astronomy and upper atmosphere re-search. Weather forecasting, library information services can benefit from computers too

It is interesting to note that computers are widely used in medicine. They became valuable medical diagnostic tools. Computers are used for optical scanning and image processing, ranging from pattern recognition to image processing. Technicians can operate computer tomography scanners, which combine x-rays with computer technology to give sectional views of the body of patients. The views then can be combined into a single image shown on the screen.

It should be noticed that learning on a computer can be fun. Students spend more time with computer-aided instruction performing the assigned task, as compared with conventional classroom.

At last air traffic control is impossible without computer application. It fully depends upon computer-generated information.

Many other uses of computers that we cannot imagine at present will become commonplace in the transition from an industrial to post-industrial, or information, society.

Text 4. DEVELOPMENT OF MICROELECTRONICS
1. Прочитайте текст и скажите, что изучает электроника и какие открытия способствовали ее развитию.

applied physics — прикладная физика
generation — создание, формирование, выработка
scientific research — научные исследования
due to the efforts — благодаря усилиям
manipulation — управление, обработка, преобразование
to replace vacuum tubes — заменять электронные лампы
a piece of semiconductor — полупроводниковый кристалл
reduced weight — уменьшенный вес
power consumption — потребление (расход) электроэнергии
to carry out — выполнять, осуществлять
solid body — твердое тело; кристалл; полупроводник
to respond — отвечать, реагировать
at a rate — со скоростью
integrated circuit (IC) — интегральная схема
batch processing — пакетная обработка
to assemble — собирать, монтировать
to lower manufacturing — снижать производительность
to increase reliability — увеличивать надёжность

Text 4. DEVELOPMENT OF ELECTRONICS
Electronics is a field of engineering and applied physics dealing with the design and application of electronic circuits. The operation of circuits depends on the flow of electrons for generation, transmission, reception, and storage of information.

Today it is difficult to imagine our life without electronics. It surrounds us everywhere. Electronic devices are widely used in scientific research and industrial

designing; they control the work of plants and power stations, calculate the trajectories of spaceships and help the people discover new phenomena of nature. Automatization of production processes and studies on living organisms became possible due to electronics.

The invention of vacuum tubes at the beginning of the 20th century was the starting point of the rapid growth of modern electronics. Vacuum tubes assisted in manipulation of signals. The development of a large variety of tubes designed for specialized functions made possible the progress in radio communication technology before the World War II and in the creation of early computers during and shortly after the war.

The transistor invented by American scientists W. Shockly, J. Bardeen and W. Brattain in 1948 completely replaced the vacuum tube. The transistor, a small piece of a semiconductor with three electrodes, had great advantages over the best vacuum tubes. It provided the same functions as the vacuum tube but at reduced weight, cost, power consumption, and with high reliability. With the invention of the transistor all essential circuit functions could be carried out inside solid bodies. The aim of creating electronic circuits with entirely solid-state components had finally been realized. Early transistors could respond at a rate of a few million times a second. This was fast enough to serve in radio circuits, but far below the speed needed for high speed computers or for microwave communication systems.

The progress in semiconductor technology led to the development of the integrated circuit (IC), which was discovered due to the efforts of John Kilby in 1958. There appeared a new field of science — integrated electronics. The essence of it is batch processing. Instead of making, testing, and assembling discrete components on a chip one at a time, large groupings of these components together with their interconnections were made all at a time. IC greatly reduced the size of devices, lowered manufacturing costs, and at the same time they provided high speed and increased reliability.
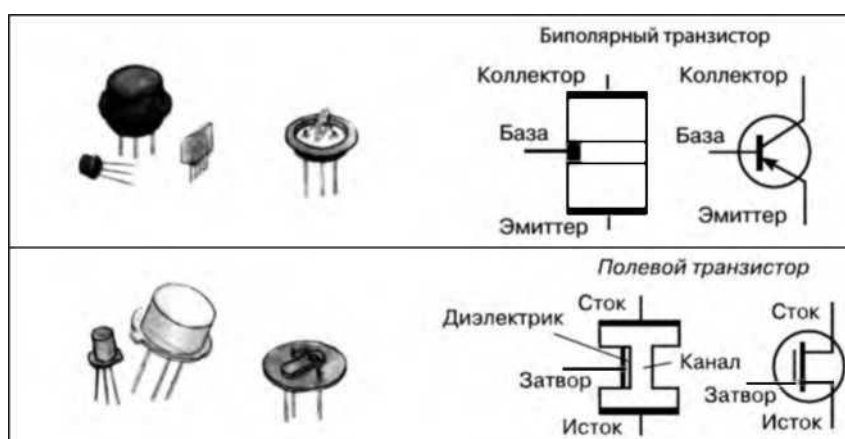

Fig. 1. Schemes of bipolar and field-effect transistors

2. Ответьте на вопросы, используя информацию текста.
1. What is electronics? 2. Can you imagine modern life without electronics? 3. Where are electronic devices used? 4. What was the beginning of electronics development? 5. What made the progress in radio communication technology possible? 6. What is

the transistor? 7. When was the transistor invented? 8. What aim was realized with the invention of the transistor? 9. When were integrated circuits discovered? 10. What advantages did the transistors have over the vacuum tubes?

3. Догадайтесь о значении следующих интернациональных слов и словосочетаний.

Electronics; electrons; physics; information; microelectronics; industrial design; to calculate trajectories; phenomena of nature; automatization of production processes; organisms; vacuum tubes; specialized functions; progress in radio communication technology; transistor; electrode; components; to realize; communication system; technology; discrete components; chip.

4. Найдите в тексте английские эквиваленты следующих словосочетаний.

Прикладная физика; передача и приём информации; поток электронов; трудно представить; научные исследования; промышленное проектирование; вычислять траекторию космических кораблей; обнаруживать явления природы; благодаря электронике; отправная точка; способствовать управлению сигналами; быстрый рост; разнообразие ламп; создание первых компьютеров; полностью заменил; полупроводниковый кристалл; уменьшить вес; сократить стоимость; потребление электроэнергии; высокая надёжность; твердотельные компоненты; довольно быстро... но гораздо ниже; высокоскоростной компьютер; микроволновые системы связи; полупроводниковая технология; область науки; интегральная схема; пакетная обработка; сборка дискретных компонентов на кристалле; снизить производственные затраты; обеспечить высокую скорость.

5. Переведите следующие «цепочки существительных». Запомните, что переводить ряд существительных, не связанных предлогами, следует, как правило, с конца.

Power consumption; power consumption change; signals manipulation; transistor invention; circuit functions; communication systems; data processing system; integrated circuits development; science field; process control; automatization processes control; circuit components; size reduction; electronics development; communication means; problem solution; space exploration; pattern recognition; customers' accounts; air traffic control.

Text 5. MICROELECTRONICS AND MICROMINIATURIZATION
1. Прочитайте и переведите текст.

performance — рабочая характеристика, параметры; производительность, быстродействие
to predict — прогнозировать
capability — способность, возможность
branch of science — область науки
to embrace — охватывать
circuit assembly — сборка схемы
film technique — пленочная технология (метод, способ)
invisible to unaided eye — невидимый невооруженному глазу
to react — реагировать

speed of response — скорость реакции (отклика)

advantage/disadvantage — достоинство, преимущество/ недостаток

benefit — выгода, польза; помогать, приносить пользу

to result from — возникать, происходить в результате

packing density — плотность упаковки

small-scale integrated circuit (IC) — малая интегральная схема (МИС)

medium-scale IC — средняя интегральная схема (СИС)

large-scale IC — большая интегральная схема (БИС)

very-large-scale IC — сверхбольшая интегральная схема (СБИС)

fineline — прецизионный, с элементами уменьшенных размеров

transmission line — линия передачи

waveguide — волновод

to emerge — появляться, возникать

to displace — перемещать, смещать

mode — вид, метод, способ, режим работы

pattern — шаблон, образец, образ, изображение

power — мощность, энергия, питание; производительность, быстродействие; способность, возможность

The intensive effort of electronics to increase the reliability and performance of its products while reducing their size and cost led to the results that hardly anyone could predict. The evolution of electronic technology is sometimes called a revolution: a quantitative change in technology gave rise to qualitative change in human capabilities. There appeared a new branch of science — microelectronics.

Microelectronics embraces electronics connected with the realization of electronic circuits, systems, and subsystems from very small electronic devices. Microelectronics is a name for extremely small electronic components and circuit assemblies, made by film or semiconductor techniques. A microelectronic technology reduced transistors and other circuit elements to dimensions almost invisible to unaided eye. The point of this extraordinary miniaturization is to make circuits long-lasting, low in cost, and capable of performing electronic functions at extremely high speed. It is known that the speed of response depends on the size of transistor: the smaller the transistor, the faster it is. The smaller the computer, the faster it can work.

One more advantage of microelectronics is that smaller devices consume less power. In space satellites and spaceships this is a very important factor.

Another benefit resulting from microelectronics is the reduction of distances between circuit components. Packing density increased with the appearance of small-scale integrated circuit, medium-scale IC, large-scale IC and very-large-scale IC. The change in scale was measured by the number of transistors on a chip. There appeared a new type of integrated circuits, microwave integrated circuit. The evolution of microwave IC began with the development of planar transmission lines. Then new IC components in a fine line transmission line appeared. Other more exotic techniques, such as dielectric waveguide integrated circuits emerged.

Microelectronic technique is continuing to displace other modes. Circuit patterns are being formed with radiation having wavelength shorter than those of light.

Electronics has extended man's intellectual power. Microelectronics extends that power still further.

2. Ответьте на вопросы, используя информацию текста.
1. What would you say about electronics? 2.Why is the development of electronics called a revolution? 3. What is microelectronics? 4. What techniques does microelectronics use? 5. What is the benefit of reducing the size of circuit elements? 6. What do you understand by the term of microminiaturization? 7. What does the speed of the signal response depend on? 8. What advantages of microelectronics do you know? 9. What scales of integration are known to you? 10. How are microelectronics techniques developing?

3. Найдите в тексте английские эквиваленты следующих слов и словосочетаний.

Интенсивные усилия; увеличить надёжность; увеличить параметры; уменьшить размер и стоимость; вряд ли кто-нибудь мог прогнозировать; количественные и качественные изменения; область науки; пленочная технология; полупроводниковый метод; сокращать элементы схемы; суть миниатюризации в том, что; создать схемы с долгим сроком службы; чрезвычайно высокая скорость реакции; чем меньше, тем быстрее; преимущество; расходовать энергию; польза; уменьшение расстояния между элементами схемы; большая интегральная схема; микроволновая интегральная схема; волновод; линия передач; смещать; изображение схем; расширять возможности человека.

Text 6. DATA PROCESSING CONCEPTS
1. Прочтите текст и скажите, как вы понимаете термины «обработка информации» и «иерархия запоминания информации».
data processing — обработка информации (данных)
to convert — преобразовывать, переводить (в другие единицы)
to accomplish — завершать, заканчивать; осуществлять, выполнять
to house — помещать, размещать
to improve — улучшать, совершенствовать
to control — управлять, регулировать; управление, регулирование
to store — хранить, запоминать, заносить в память (размещать в памяти)
storage — запоминающее устройство, память; хранение
resource — ресурс, средство, возможность
facility —устройство, средство;
facilities —приспособления, возможности
equipment — оборудование, аппаратура, приборы, устройства
available — доступный, имеющийся (в наличии), возможный
display — дисплей, устройство (визуального) отображения, показ
manner — способ, образ (действий)
sequence — последовательность, порядок (следования)
successively — последовательно

data storage hierarchy — иерархия (последовательность) запоминания информации (данных)

to enter — входить; вводить (данные), заносить, записывать

comprehensive groupings — полные (обширные, универсальные) образования

meaningful — имеющий смысл, значащий (о данных)

item — элемент, составная часть

record — запись, регистрация; записывать, регистрировать

file — файл; заносить в файл (хранить в файле)

set — набор, множество, совокупность, серия, группа, система

data base — база данных

related — смежный, взаимосвязанный, относящийся (к чему-л.)

Text 7. DATA PROCESSING AND DATA PROCESSING SYSTEMS

The necessary data are processed by a computer to become useful information. In fact this is the definition of data processing. Data are a collection of facts — unorganized but able to be organized into useful information. Processing is a series of actions or operations that convert inputs into outputs. When we speak of data processing, the input is data, and the output is useful information. So, we can define data processing as a series of actions or operations that converts data into useful information.

We use the term data processing system to include the resources that are used to accomplish the processing of data. There are four types of resources: people, materials, facilities, and equipment. People provide input to computers, operate them, and use their output. Materials, such as boxes of paper and printer ribbons, are consumed in great quantity. Facilities are required to house the computer equipment, people, and materials.

The need for converting facts into useful information is not a phenomenon of modern life. Throughout history, and even prehistory, people have found it necessary to sort data into forms that were easier to understand. For example, the ancient Egyptians recorded the ebb and flow of the Nile River and used this information to predict yearly crop yields. Today computers convert data about land and water into recommendations to farmers on crop planting. Mechanical aids to computation were developed and improved upon in Europe, Asia, and America throughout the 17th, 18th, and 19th centuries. Modern computers are marvels of an electronics technology that continues to produce smaller, cheaper, and more powerful components.

Basic data processing operations

Five basic operations are characteristic of all data processing systems: inputting, storing, processing, outputting, and controlling. They are defined as follows.

Inputting is the process of entering data, which are collected facts, into a data processing system. Storing is saving data or information so that they are available for initial or for additional processing. Processing represents per-forming arithmetic or logical operations on data in order to convert them into useful information. Outputting is the process of producing useful information, such as a printed report or visual display.

Controlling is directing the manner and sequence in which all of the above operations are performed.

Data storage hierarchy

It is known that data, once entered, are organized and stored in successively more comprehensive groupings. Generally, these groupings are called a data storage hierarchy. The general groupings of any data storage hierarchy are as follows.

1) Characters, which are all written language symbols: letters, numbers, and special symbols.

2) Data elements, which are meaningful collections of related characters. Data elements are also called data items or fields.

3) Records, which are collections of related data elements.

4) Files, which are col-lections of related records. A set of related files is called a data base or a data bank.

2. Ответьте на вопросы, используя информацию текста 1.

1. What is processing? 2. What is data processing? 3. What does the term of data processing system mean? 4. What basic operations does a data processing system include? 5. What is inputting/storing/outputting information? 6. What do you understand by resources? 7. How did ancient Egyptians convert facts into useful information? 8. When were mechanical aids for computation developed? 9. What does data storage hierarchy mean? 10. What are the general groupings of any data storage hierarchy?

3. Найдите в тексте английские эквиваленты следующих словосочетаний.

Системы обработки информации; определение (термина) обработки данных; совокупность фактов; последовательность действий; преобразование входных данных в полезную информацию; включать ресурсы; завершить обработку данных; обеспечивать ввод информации в компьютер; ленты принтера; расходовать в большом количестве; размещать компьютерное оборудование; нуждаться (требовать) в приспособлениях; явление современной жизни; на протяжении доисторического периода; превращать информацию в выражения; регистрировать отливы и приливы; прогнозировать урожай зерновых культур; механические средства вычисления; ввод данных; хранение данных; первоначальная обработка данных; дополнительная обработка; выдача полезной информации; напечатанное сообщение; зрительное отображение; последовательность запоминания информации; записанные символы языка; элементы информации; база данных; набор взаимосвязанных файлов.

4. Переведите следующие цепочки существительных.

Data resource; storage resource; network resource; security resource; system resource.

Communication facilities; data base facilities; display facilities; management facilities.

Distance control; device control; keyboard control; position control; program control.

Computer storage; laser storage; file storage; disk storage; data storage hierarchy.

Character sequence; instruction sequence; message sequence; pulse sequence.

Batch file; catalog file; data file; help file; input file; output file; menu file; user file.

Command input; data input; disk input; file input; keyboard input; program input.

5. Проанализируйте неличные формы глагола и правильно переведите предложения.

1. Data are processed to become useful information. 2. We use the term data processing to include the resources applied for processing of information. 3. Resources required for accomplishing the processing of data are called data processing system. 4. Processing is a series of operations converting inputs into outputs. 5. Facilities are required to house the computer equipment. 6. Egyptians used the information to predict crop yields. 7. Information to be put into the computer for processing should be coded into ones and zeroes. 8. Processing is operations on data to convert them into useful information. 9. The first machines designed to manipulate punched card data were widely used for business data processing. 10. Holerith built one machine to punch the holes and the other to tabulate the collected data.

6. Прочитайте текст и скажите, каковы основные достоинства компьютеров. Переведите текст.

manual — ручной, выполняемый вручную

to take advantage of smth — воспользоваться чем-л.

capability — способность, возможность, характеристика

accuracy — точность, правильность, четкость (изображения)

correctly — правильно, верно

to eliminate — устранять, удалять, отменять, ликвидировать

to make errors — допускать ошибки (погрешности)

errorprone — подверженный ошибкам

to remain vulnerable — оставаться уязвимым, чувствительным

invalid data — неверные, неправильные, недопустимые данные

communications networks — сети передачи данных, сети связи

travel — перемещение, прохождение, путь, ход

instant response — мгновенный ответ (реакция)

to respond — отвечать, реагировать

access — доступ, обращение; обращаться, иметь доступ

capacity of storage — объем (емкость) памяти

to retrieve — извлекать, выбирать (данные); восстанавливать (файл)

value — значение, величина; значимость, ценность; оценка; оценивать

objective — цель, требование; целевая функция

cost-effective — экономичный, экономически оправданный

challenge — трудность, препятствие; представлять трудность

Text 8. ADVANTAGES OF COMPUTER DATA PROCESSING

Computer-oriented data processing systems or just computer data processing systems are not designed to imitate manual systems. They should com-bine the capabilities of both humans and computers. Computer data processing systems can be designed to take advantage of four capabilities of computers.

1. Accuracy. Once data have been entered correctly into the computer component of a data processing system, the need for further manipulation by humans is eliminated, and the possibility of error is reduced. Computers, when properly

programmed, are also unlikely to make computational errors. Of course, computer systems remain vulnerable to the entry by humans of invalid data.

2. Ease of communications. Data, once entered, can be transmitted wherever needed by communications networks. These may be either earth or satellite-based systems. A travel reservations system is an example of a data communications network. Reservation clerks throughout the world may make an enquiry about transportation or lodgings and receive an almost instant response. Another example is an office communications system that provides executives with access to a reservoir of date, called a corporate data base, from their personal microcomputer work stations.

3. Capacity of storage. Computers are able to store vast amounts of information, to organize it, and to retrieve it in ways that are far beyond the capabilities of humans. The amount of data that can be stored on devices such as magnetic disks is constantly increasing. All the while, the cost per character of data stored is decreasing.

4. Speed. The speed, at which computer data processing systems can respond, adds to their value. For example, the travel reservations system mentioned above would not be useful if clients had to wait more than a few seconds for a response. The response required might be a fraction of a second.

Thus, an important objective in the design of computer data processing systems is to allow computers to do what they do best and to free humans from routine, error-prone tasks. The most cost-effective computer data processing system is the one that does the job effectively and at the least cost. By using computers in a cost-effective manner, we will be better able to respond to the challenges and opportunities of our post-industrial, information-dependent society.

1. Ответьте на вопросы, используя информацию текста.

1. What capabilities should data-processing systems combine when designed? 2. What are the main advantages of computers? 3. What do you know of computers accuracy? 4. What is the function of communications networks? 5. Give examples of a data communications network. 6. What do you understand by capacity storage? 7. What other values of computer data processing systems do you know? 8. What is an important objective in the design of computer data processing systems? 9. What is the most effective computer data processing system? 10. What is the best way of responding to the challenges and opportunities of our post-industrial society?

2. Найдите в тексте английские эквиваленты следующих словосочетаний.

Система обработки информации компьютером; система ориентирования на обработку данных; запоминать огромное количество информации; извлекать информацию; добавить значимости; компьютером; сочетать возможности человека и машины; ограничивать управление; вряд ли допустят ошибку; оставаться уязвимым; недопустимые данные; легкость осуществления связи; сеть передачи информации; системы, основанные на использовании спутников; служащие по резервированию жилья; получить мгновенный ответ; наводить справки; хранилище данных; корпоративная база данных; объем памяти, упомянутый выше; доля секунды; подверженный ошибкам; экономически оправданный.

3. Вспомните значения новых слов и догадайтесь о значении их производных.

To eliminate: elimination, eliminable, eliminator, unlimited.

To respond: respondent, response, responsible, irresponsible, responsibility.

Accuracy: inaccuracy, accurate, inaccurate, accurately.

Correctly: correct, incorrect, to correct, correction, correctional, corrective, corrector.

Vulnerable: invulnerable, vulnerability, invulnerability.

Invalid: valid, invalidity, validity.

Access: accessible, inaccessible, accessibility, inaccessibility.

4. Преобразуйте предложения, содержащие модальные глаголы:

а) в прошедшее время;

б) будущее время.

1. Computers can replace people in dull routine work. 2. The program is a set of instructions that may also include data to be processed. 3. Computer- controlled robots must increase the productivity of industry. 4. They can help in making different decisions. 5. The pupils may work with computers at the lessons. 6. Electric pulses can move at the speed of light. 7. Storage devices must have capacities for the input, output data and programs and for intermediate results. 8. Business minicomputers can perform to 100 million operations per second. 9. In order to solve scientific problems researchers must deal with the language of science — mathematics. 10. Programmers must write application programs in a way that computers can understand.

Text 9. COMPUTER SYSTEMS: AN OVERVIEW

1. Прочитайте текст и скажите, о каких типах компьютеров и сферах их применения вы узнали.

architecture — архитектура, структура

architect — разработчик архитектуры (системы, структуры)

unit — устройство, модуль, блок, элемент, составная часть

accessory equipment — вспомогательные устройства

engineering background — техническая подготовка, квалификация

analyst — аналитик, системный разработчик

product line — серия (компьютерных) продуктов

manufacturer — изготовитель, производитель, разработчик

application programmer — прикладной программист

to simulate — моделировать, имитировать

voltage — напряжение

pressure — давление, сжатие

digital computer — цифровой компьютер

hybrid computer — смешанного типа, аналого-цифровой компьютер

discrete — дискретный, отдельный

continuous quantity — непрерывная величина

on-going process — продолжающийся, постоянный, непрерывный процесс

to rely — основываться на чем-л., полагаться

to install — устанавливать, размещать, монтировать, настраивать
household appliances — домашние приборы / устройства
microwave oven — микроволновая печь
indoor climate control system — система регуляции температуры в доме

COMPUTER SYSTEM ARCHITECTURE

As we know, all computer systems perform the functions of inputting, storing, processing, controlling, and outputting. Now we'll get acquainted with the computer system units that perform these functions. But to begin with let's examine computer systems from the perspective of the systems designer, or architect.

It should be noted that computers and their accessory equipment are designed by a computer system architect, who usually has a strong engineering background. As contrasted with the analyst, who uses a computer to solve specific problems, the computer system architect usually designs computer that can be used for many different applications in many different businesses. For example, the product lines of major computer manufacturers such as IBM, Digital Equipment Corporation, and many others are the result of the efforts of teams of computer system architects.

Unless you are studying engineering, you don't need to become a computer systems architect. However, it is important that as a potential user, applications programmer, or systems analyst you understand the functions of the major units of a computer system and how they work together.

Types of computers

The two basic types of computers are analog and digital. Analog computers simulate physical systems. They operate on the basis of an analogy to the process that is being studied. For example, a voltage may be used to represent other physical quantities such as speed, temperature, or pressure. The response of an analog computer is based upon the measurement of signals that vary continuously with time. Hence, analog computers are used in applications that require continuous measurement and control.

Digital computers, as contrasted with analog computers, deal with discrete rather than continuous quantities. They count rather than measure. They use numbers instead of analogous physical quantities to simulate ongoing or real-time processes. Because they are discrete events, commercial transactions are in a natural form for digital computation. This is one reason that digital computers are so widely used in business data processing.

Machines that combine both analog and digital capabilities are called hybrid computers. Many business, scientific, and industrial computer applications rely on the combination of analog and digital devices. The use of combination analog devices will continue to increase with the growth in applications of microprocessors and microcomputers. An example of this growth is the trend toward installing control systems in household appliances such as microwave ovens and sewing machines. In the future we will have complete indoor climate control systems and robots to do our housecleaning. Analog sensors will provide inputs to the control centers of these systems, which will be small digital computers.

2. Ответьте на вопросы, используя информацию текста.

1. Who designs computers and their accessory equipment? 2. What is the role of an analyst? 3. Is it necessary for a user to become a computer system architect? 4. What functions do computer systems perform? 5. What types of computers do you know? 6. What is the principle of operation of analog computers? 7. How do digital computers differ from analog computers? 8. Where are digital and analog computers used? 9. What are hybrid computers? 10. Where do they find application?

3. Найдите в тексте английские эквиваленты следующих слов и словосочетаний.

Функции ввода, хранения, обработки, управления и вывода информации; познакомиться; системные блоки; для начала; вспомогательные устройства; разработчик компьютерной системы; хорошая компьютерная подготовка; различные сферы применения; корпорация цифрового оборудования; прикладной программист; системный разработчик; главные устройства компьютерной системы; моделировать физические величины; измерение сигналов; в отличие от; иметь дело скорее с дискретными, чем непрерывными величинами; в режиме реального времени; коммерческие операции; цифровое вычисление; аналого-цифровые компьютеры; тенденция к установке систем управления; домашние приборы.

4. Прочитайте текст объясните, как вы понимаете термины «аппаратное обеспечение» и «программное обеспечение». Переведите текст.

hardware — аппаратное обеспечение, аппаратура, оборудование

software — программное обеспечение, программные средства

system software — системное программное обеспечение

application software — прикладное программное обеспечение

firmware — встроенное / микропроцессорное программное обеспечение

visible units — видимый блок, устройство

procedure — процедура, процесс, метод, методика, алгоритм

to associate — соединять, объединять, связывать

associated documentation — соответствующая документация

to execute applications programs — выполнять прикладные программы

payroll — платежная ведомость

inventory control — инвентаризация, переучет

investment analyses — анализ инвестиций (капиталовложений)

to protect — защищать

read-only memory (ROM) — постоянное запоминающее устройство (ПЗУ)

to refer to — относиться к; ссылаться на

to substitute — заменять, замещать

to cause — заставлять, вынуждать; причина, основание

to accomplish — завершать, заканчивать; выполнять, осуществлять

performance — производительность; быстродействие; рабочая характеристика

Text HARDWARE, SOFTWARE, AND FIRMWARE

The units that are visible in any computer are the physical components of a data processing system, or hardware. Thus, the input, storage, processing, and control devices are hardware. Not visible is the software — the set of computer programs, procedures, and associated documentation that make possible the effective operation of the computer system. Software programs are of two types: systems software and applications software.

Systems software are the programs designed to control the operation of a computer system. They do not solve specific problems. They are written to assist people in the use of the computer system by performing tasks, such as controlling all of the operations required, to move data into and out of a computer and all of the steps in executing an applications program. The person who prepares systems software is referred to as a systems programmer. Systems programmers are highly trained specialists and important members of the architectural team.

Applications software are the programs written to solve specific problems (applications), such as payroll, inventory control, and investment analysis. The word program usually refers to an applications program, and the word programmer is usually a person who prepares applications software.

Often programs, particularly systems software, are stored in an area of memory not used for applications software. These protected programs are stored in an area of memory called read-only memory (ROM), which can be read from but not written on.

Firmware is a term that is commonly used to describe certain programs that are stored in ROM. Firmware often refers to a sequence of instructions (software) that is substituted for hardware. For example, in an instance where cost is more important than performance, the computer system architect might decide not to use special electronic circuits (hardware) to multiply two numbers, but instead write instructions (software) to cause the machine to accomplish the same function by repeated use of circuits already designed to perform addition.

6. Ответьте на вопросы, используя информацию текста.

1. What is hardware? 2. What is the definition of software? 3. What are the types of software? 4. What are systems software? 5. What kind of tasks do systems software perform? 6. Who prepares systems software? 7. What is applications software? 8. What problems do applications software solve? 9. What is firmware? 10. How can a computer system architect use firmware?

7. Найдите в тексте английские эквиваленты следующих слов и словосочетаний.

Видимые устройства; система обработки данных; аппаратное обеспечение; набор компьютерных программ; соответствующая документация; эффективная работа; системное программное обеспечение; прикладное программное обеспечение; системный программист; платёжная ведомость; переучёт; анализ инвестиций; прикладная программа; работающий только в режиме чтения; постоянное запоминающее устройство; последовательность команд; в случае; производительность; электронная цепь; умножать числа; заставить машину выполнять ту же функцию; выполнять сложение.

8. Вспомните значения новых слов и попытайтесь перевести словосочетания, употребляемые с этими словами.

Architecture: communication architecture; computer architecture; disk architecture; microprocessor architecture; network architecture; security architecture; system architecture; virtual architecture.

Software: systems software; applications software; database software; disk software; educational software; game software; management software; simulation software.

Hardware: computer hardware; device hardware; display hardware; memory hardware; mouse hardware; network hardware; systems hardware; video hardware.

Procedure: accounting procedure; computational procedure; control procedure; data-processing procedure; decision procedure; error-correcting procedure; formatting procedure; installation procedure; management procedure; solution procedure.

Protection: computer protection; data protection; device protection; dis-play protection; error protection; hardware protection; software protection; resource protection; security protection; system protection; virus protection.

9. Озаглавьте каждый компонент текста.

STEPS IN THE DEVELOPMENT OF COMPUTERS

1. In 1948 due to the invention of transistors there appeared the possibility to replace vacuum tubes. The transistor occupied an important place on the way to computer development. The potential advantage of the transistor over the vacuum tube was almost as great as that of the vacuum tube over the relay. A transistor can switch flows of electricity as fast as the vacuum tubes used in computers, but the transistors use much less power than equivalent vacuum tubes, and are considerably smaller. Transistors are less expensive and more reliable. They were mechanically rugged, had practically unlimited life and could do some jobs better than electronic tubes. Transistors were made of crystallic solid material called semiconductor. With the transistor came the possibility of building computers with much greater complexity and speed.

2. The integrated circuit constituted another major step in the development of computer technology. Until 1959 the fundamental logical components of digital computers were the individual electrical switches, first in the form of relays, then vacuum tubes, then transistors. In the vacuum tubes and relay stages, additional discrete components, such as resistors, inductors, and capacitors were required in order to make the whole system work. These components were generally each about the same size as packaged transistors. Integrated circuit technology permitted the elimination of some of these components and integration of most of the others on the same chip of semiconductor that contains the transistor. Thus the basic logic element — the switch, or "flip-flop", which required two separate transistors and some resistors and capacitors in the early 1950s, could be packaged into a single small unit in 1960. The chip was an important achievement in the accelerating step of computer technology.

3. In 1974 a company in New Mexico, called Micro Instrumentation Telemetry System (MITS) developed the Altair 8800, a personal computer (PC) in a kit. The Altair had no keyboard, but a panel of switches with which to enter the information.

Its capacity was less than one percent that of the 1991 Hewlett-Packard handheld computer. But the Altair led to a revolution in computer electronics that continues today. Hardware manufacturers soon introduced personal computers, and software manufacturers began developing software to allow the computers to process words, manipulate data, and draw. During the 1980s computers became progressively smaller, better, and cheaper.

Today the personal computer can serve as a work station for the individual. A wide array of computer functions is now accessible to people with no technical background.

FUNCTIONAL ORGANIZATION OF THE COMPUTER

1. Прочитайте текст и назовите основные функциональные блоки компьютера и их назначение.

operation — операция; работа; действие; срабатывание

to relate — связывать, устанавливать отношения

a broad view — широкий взгляд, обзор

unit — устройство, модуль, блок, узел, элемент, ячейка

input — ввод, устройство ввода, вводить, подавать на вход

to insert — вставлять; вносить; включать

storage = memory — память, запоминающее устройство

available — доступный, имеющийся в наличии

at the appropriate time — в нужное время

arithmetic-logical unit — арифметико-логическое устройство

output — вывод, устройство вывода; выводить, подавать на выход

to remove — удалять, устранять, вынимать, исключать

control unit — блок управления

cause — заставлять, вынуждать, быть причиной; причина, основание

to feed (fed, fed) — подавать; питать; вводить (данные)

to interpret — интерпретировать, истолковывать

to issue commands — выдавать команды

pulse — no-pulse — (есть) импульс — холостой импульс

Text FUNCTIONAL UNITS OF DIGITAL COMPUTERS

As we know, all computer operations can be grouped into five functional categories. The method in which these five functional categories are related to one another represents the functional organization of a digital computer. By studying the functional organization, a broad view of the computer is received.

The five major functional units of a digital computer are:

1) Input — to insert outside information into the machine;

2) Storage or memory — to store information and make it available at the appropriate time;

3) Arithmetic- logical unit — to perform the calculations;

4) Output — to remove data from the machine to the outside world and

5) Control unit — to cause all parts of a computer to act as a team.

Figure 5 shows how the five functional units of the computer act together. A complete set of instructions and data are usually fed through the input equipment to

the memory where they are stored. Each instruction is then fed to the control unit. The control unit interprets the instructions and issues commands to the other functional units to cause operations to be performed on the data. Arithmetic operations are performed in the arithmetic-logical unit, and the results are then fed back to the memory. Information may be fed from either the arithmetic unit or the memory through the output equipment to the outside world.

The five units of the computer must communicate with each other. They can do this by means of a machine language which uses a code composed of combinations of electric pulses. These pulse combinations are usually represented by zeros and ones, where the one may be a pulse and the zero — a no-pulse. Numbers are communicated between one unit and another by means of these one-zero or pulse — no pulse combinations. The input has the additional job of converting the information fed in by the operator into machine language. In other words, it translates from our language into the pulse — no-pulse combinations understandable to the computer. The output's additional job is converting the pulse — no-pulse combinations into a form understand-able to us, such as a printed report.
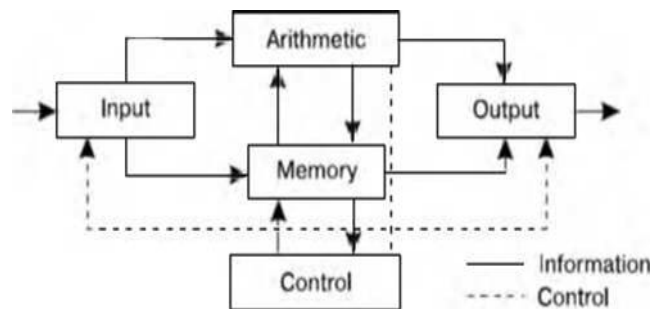

Fig. 5. Functional units of a computer

2. Дайте ответы на вопросы, используя информацию текста.
1. What represents the functional organization of a computer? 2. What can we get by studying the functional organization? 3. What is the function of the input device? 4. What does memory serve for? 5. What is the task of the arithmetic-logical unit? 6. What is the function of the output? 7. What is the main purpose of the control unit? 8. How do all units of the computer communicate with each other? 9. What is the additional job of the input? 10. What is the additional function of the output?

3. Найдите в тексте английские эквиваленты следующих словосочетаний.

Функциональная организация; действия компьютера; связывать друг с другом; вводить информацию извне; делать информацию доступной; выполнять вычисления; выводить информацию; блок управления; выдавать команды; заставлять выполнять команды; выходное устройство; внешний мир; связываться друг с другом; комбинация электрических импульсов; холостой импульс; импульсы, распознаваемые компьютером.

4. Разделите приведенные ниже слова на три группы, определяя по суффиксу часть речи — существительное или наречие. Переведите слова.

Organization, functional, прилагательное, available, equipment, processor, completely, architectural, converter, convertible, controller, removable, logical, addition, additional, usually, accomplishment, operator, operation, mainly,

communication, insertion, electronic, digital, instruction, generally, arithmetic, daily, development, central, lately, visible, substitution, understandable.

5. Вспомните значения новых слов и попытайтесь перевести словосочетания, употребляемые с этими словами.

Computer: analog computer; digital computer; hybrid computer; all-purpose computer; general-purpose computer; fifth-generation computer; game computer; handheld computer; mobile computer; multimedia computer; notebook computer; pocket computer; portable computer.

Unit: unit of memory; unit of data; unit of measurement; arithmetic unit; arithmetic-logic unit; central processing unit; computing unit; control unit; functional unit; input unit; output unit; network unit; system unit.

Function: arithmetic function; checking function; complex function; computer function; continuous function; conversion function; distribution function; encoding function; logical function; numeric function; output function; program function; search function; software function; support function; utility function; variable function.

Control: access control; batch control; coding control; distance/remote control; error control; execution control; hardware control; input/output control; memory control; power control; production control; program control; rate control; self-acting control; software control; system control.

6. Вспомните значения следующих прилагательных и преобразуйте их в сравнительную и превосходную степень.

A. Small; fast; new; long; late; wide; young; easy; great; dull; rich; bulky; large; vast; early; old; broad.

B. Frequent; reliable; approximate; significant; intricate; possible; basic; remarkable; common; modern; dependent; general; necessary; successful; scientific; universal.

C. Good; bad; little; many.

7. Прочитайте текст 2 и скажите, какую дополнительную информацию вы узнали о действии основных устройств компьютера.

large-scale — большой, крупномасштабный

flip-flop — триггер

circuit — цепь, контур, схема

employ — использовать, употреблять, применять

logic gates — логический элемент, схема пропускания (сигналов), проход

feasible — возможный, выполнимый, осуществимый

interpret orders — интерпретировать, истолковывать команды

operate switches — приводить в действие переключатели

convey — передавать, сообщать

in response to — в ответ на

correct operand — нужный операнд

original input data — исходная вводимая информация

proceed — продолжать(ся), возобновлять(ся), действовать

room — (свободное) место, свободная память

Text SOME FEATURES OF A DIGITAL COMPUTER

It should be noticed that even in a large-scale digital system, such as in a computer, or in a data-processing, control, or digital-communication system, there are only a few basic operations which must be performed. These operations may be operated many times. The four circuits most commonly employed in such systems are known as the OR, AND, NOT and FLIP-FLOP. They are called logic gates or circuits.

An electronic digital computer is a system which processes and stores very large amount of data and which solves scientific problems of numerical computations of such complexity and with such speed that solution by human calculation is not feasible. So the computer as a system can perform numerical computations and follow instructions with extreme speed but it cannot program itself.
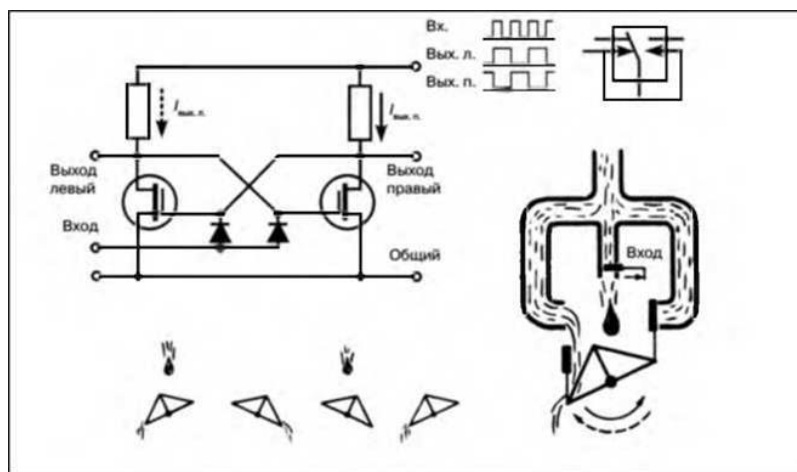

Fig. 6. FLIP-FLOP

We know that the numbers and the instructions which form the program, the computer is to follow, are stored in an essential part of the computer called the memory. The second important unit of the computer is the control whose function is to interpret orders. The control must convert the command into an appropriate set of voltages to operate switches and carry out the instructions conveyed by the order. The third basic element of a computer is the arithmetic device, which contains the circuits performing the arithmetic computations: addition, subtraction, etc. The control and arithmetic components are called the central processor. Finally a computer requires appropriate input-output devices for inserting numbers and orders into the memory and for reading the final result.

Suppose a command to perform an addition or division has been transmitted to the central processor. In response to this order the control must select the correct operands from the memory, transmit them to the arithmetic unit and return to the memory the result of the computation. The memory serves for storing not only the original input data, but also the partial results which will have to be used again as the computation proceeds.

Lastly, if the computation doesn't stop with the execution of this instruction and the storage of the partial result, the control unit must automatically pass on to the next instruction. The connection of the control unit back to the input permits insertion of more data when there is room in the memory.

8. Ответьте на вопросы, используя информацию текста.

1. What are the most commonly used circuits in any computer? 2. How are they called? 3. What kind of a system is a digital computer? 4. Is there any-thing that a computer cannot do itself? What is it? 5. Where are the instructions and digits stored? 6. What is the function of the control? 7. What does the arithmetic device serve for? 8. What components form the central processor? 9. What other devices in addition to the above-mentioned ones does a computer require? 10. How are computations performed in a computer?

9. Найдите в тексте английские эквиваленты следующих слов и словосочетаний.

Крупномасштабная цифровая система; система обработки данных; система цифровой связи; наиболее широко распространенные схемы; логические схемы; решать научные проблемы; выполнять числовые расчеты; интерпретировать команды; приводить в действие переключатели; выполнять команды; нуждаться (требовать) в необходимом устройстве ввода-вывода; введение чисел и команд; считывание конечных результатов; передавать команду в центральный процессор; в ответ на; хранение частичных результатов; позволить введение новых данных; свободное место в памяти.

10. Подберите пары или группы близких по значению слов из предложенных ниже. Переведите слова на русский язык.

Verbs: relate, employ, insert, perform, remove, operate, show, interpret, select, issue, use, receive, perform, cause, print, make, compute, connect, execute, take away, require, act, convert, carryout, demand, permit, demonstrate, choose, transmit, type, store, get, calculate, proceed, continue, keep, allow.

Nouns: response, unit, component, computation, storage, gate, amount, digit, element, memory, instruction, device, equipment, connection, circuit, order, command, information, relation, quantity, answer, calculation, number, data.

Adjectives: broad, complete, each, appropriate, every, basic, essential, digital, original, full, wide, initial, major, large, numerical, common, necessary, usual, important, general, great.

STORAGE

1. Прочитайте текст и скажите, что такое запоминающее устройство в компьютере и о каких его типах вы узнали из текста.

primary/secondary storage — первичное/вторичное запоминающее устройство

main storage — основная память, оперативное запоминающее устройство

internal storage — внутреннее ЗУ

sequence — последовательность, порядок следования

intermediate results — промежуточные результаты

ongoing process — продолжающий(ся), постоянный процесс

similarity — сходство, подобие

to retain — сохранять, удерживать

to locate — размещать(ся), располагать(ся)

value — значение, величина; значимость, ценность; оценка

binary digit — двоичная цифра, двоичный знак

adjacent — смежный, соседний, примыкающий
strings of characters — последовательность символов
consecutive — последовательный, смежный, соседний

Text STORAGE UNITS

Computer system architecture is organized around the primary storage unit because all data and instructions used by the computer system must pass through primary storage. Our discussion of computer system units will begin with the functions of the primary and secondary storage units. This leads to the examination of the central processing unit and from there to the consideration of the input and output units. Therefore, the sequence in which we'll describe the functional units of a digital computer is: 1) storage units, primary and secondary; 2) central processing unit; 3) input and output units.
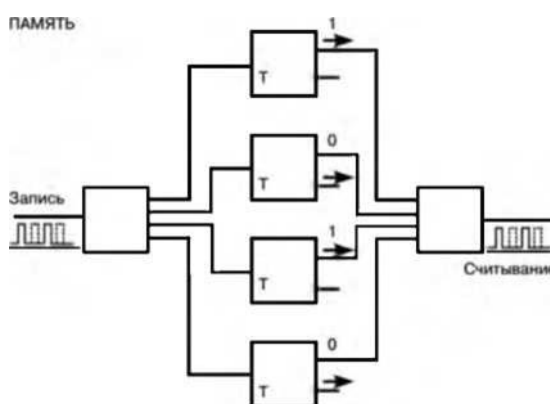

Fig. 10. Storage

As you know, there are primary and secondary storage units. Both contain data and the instructions for processing the data. Data as well as instructions must flow into and out of primary storage.

Primary storage is also called main storage or internal storage. The specific functions of internal storage are to hold (store): 1) all data to be processed; 2) intermediate results of processing; 3) final results of processing; 4) all the instructions required for ongoing process. Another name for primary storage is memory, because of its similarity to a function of the human brain. However, computer storage differs from human memory in important respects. Computer memory must be able to retain very large numbers of symbol combinations, without forgetting or changing any details. It must be able to locate all its contents quickly upon demand. The combinations of characters, that is, the letters, numbers, and special symbols by which we usually communicate, are coded. The codes used by computer designers are based upon a number system that has only two possible values, 0 and 1. A number system with only two digits, 0 and 1, is called a binary number system. Each binary digit is called a bit, from BInary digiT. As the information capacity of a single bit is limited to 2 alternatives, codes used by computer designers are based upon combinations of bits. These combinations are called binary codes. The most common binary codes are 8-bit codes because an 8-bit code provides for 28, or 256 unique

combinations of 1s and 0s, and this is more than adequate to represent all of the characters by which we communicate.

Data in the form of coded characters is stored in adjacent storage locations in main memory in two principal ways: 1) as "strings" of characters — in bytes; and 2) within fixed-size "boxes" — in words. A fixed number of consecutive bits that represent a character is called a byte. The most common byte size is 8-bit byte. Words are usually 1 or more bytes in length.

Secondary Storage. Primary storage is expensive because each bit is represented by a high-speed device, such as a semiconductor. A million bytes (that is, 8 million bits) is a large amount of primary storage. Often it is necessary to store many millions, sometimes billions, of bytes of data. Therefore slower, less expensive storage units are available for computer systems. These units are called secondary storage. Data are stored in them in the same binary codes as in main storage and are made available to main storage as needed.

2. Ответьте на вопросы, используя информацию текста.

1. What are the functional units of a digital computer? 2. What units make up the central processing unit? 3. How is computer system organized? 4. What are the two main types of storage units? 5. What do they contain? 6. What is the function of a primary storage? 7. Why is primary storage often called memory? 8. In what respect does computer memory differ from human memory? 9. What are codes based on? 10. What is secondary storage and what is it used for?

3. Найдите в тексте английские эквиваленты следующих слов и словосочетаний.

Функциональный блок; цифровой компьютер; устройство ввода; устройство управления; арифметико-логическое устройство; центральный процессор; структура компьютерной системы; первичное запоминающее устройство; вторичное ЗУ; рассмотрение; поэтому последовательность; оперативное ЗУ; внутренняя память; промежуточные результаты; подобие функции человеческого мозга; размещать содержимое по требованию; система счисления; двоичная система счисления; возможные величины; объем информации; двоичный код; смежные ячейки памяти; последовательность символов; быстродействующее устройство; полупроводник; доступный.

4. Вспомните значения новых слов и попытайтесь перевести словосочетания, употребляемые с этими словами.

Storage: available storage; buffer storage; computer storage; data storage; magnetic disk storage; magnetic tape storage; input storage; intermediate storage; internal storage; laser storage; main storage; primary storage; secondary storage; sequential-access storage; variable storage; virtual storage.

Value: absolute value; acceptable value; additional value; binary value; byte value; character value; constant value; correct value; data value; digit value; discrete values; invalid value; negative value; numerical value; output value; valid value.

Digit: binary digit; binary-coded digit; check digit; information digit; input digit; non-significant digit; significant digit; digit-by-digit.

Sequence: out of sequence; alphabetic sequence; arithmetic sequence; binary sequence; character sequence; code sequence; instruction sequence; data sequence;

digital sequence; historical sequence; increasing sequence; program sequence; string sequence.

5. Найдите в тексте слова, близкие по значению к следующим.

Memory; element; information; command; examination; character; quantity; number; place; computer architect; likeness.

To apply; to form; to move; to hold; to demand; to connect; to supply; to place; to name; to start; to examine.

Continuous; significant; consecutive; usual; enough; main; initial; general.

6. Прочитайте текст 2 и скажите, как вы понимаете термин «запоминающая среда» и какие компоненты ее составляют. Переведите текст.

medium (pl. media) — носитель; среда

capacity — емкость, объем (памяти); пропускная способность

media capacity — емкость носителя

data access time — время доступа к данным

per bit — на единицу информации

to transfer — передавать(ся), переносить(ся), пересылать(ся)

archival storage — архивное ЗУ, архивная память

to depend — зависеть, полагаться, рассчитывать на

to rotate — вращать(ся); чередовать(ся), сменять(ся)

reason — причина, основание, довод; обосновывать, делать вывод

solid-state device — твердотельный прибор

magnetic core — магнитный сердечник

bipolar semiconductor — биполярный полупроводник

metal-oxide semiconductor (MOS) — структура металл — оксид — полупроводник

randomly — произвольно

random-access memory (RAM) — оперативное запоминающее устройство (ОЗУ)

sound recording — звукозапись

to arrange — размещать, располагать, устанавливать, монтировать

tape device — ЗУ на магнитной ленте

to range — классифицировать, располагать в порядке; лежать в диапазоне

magnetic disk storage — ЗУ на магнитном диске

moving-head device — устройство с двигающейся головкой

predominant — преобладающий, доминирующий

flexible — гибкий, настраиваемый, изменяемый

floppy (disk) — гибкий диск (дискета), ЗУ на гибком диске

to meet the demands — удовлетворять потребности

Text. STORAGE DEVICES

Storage media are classified as primary storage or secondary storage on the basis of combinations of cost, capacity, and access time. The cost of storage devices is expressed as the cost per bit of data stored. The most common units of cost are cents, millicents (0.001 cents), and microcents (0.000001 cents). The time required for the computer to locate and transfer data to and from a storage medium is called the

access time for that medium. Capacities range from a few hundred bytes of primary storage for very small computers to many billions of bytes of archival storage for very large computer systems.

Memories may be classified as electronic or electromechanical. Electronic memories have no moving mechanical parts, and data can be transferred into and out of them at very high speeds. Electromechanical memories depend upon moving mechanical parts for their operation, such as mechanisms for rotating magnetic tapes and disks. Their data access time is longer than is that of electronic memories; however, they cost less per bit stored and have larger capacities for data storage. For these reasons most computer systems use electronic memory for primary storage and electromechanical memory for secondary storage.

Primary storage has the least capacity and is the most expensive; how-ever, it has the fastest access time. The principal primary storage circuit elements are solid-state devices: magnetic cores and semiconductors. For many years magnetic cores were the principal elements used in digital computers for primary storage. The two principal types of semiconductors used for memory are bipolar and metal-oxide semiconductors (MOS). The former is faster, the latter is more commonly used at present. Because data can be accessed randomly, semiconductor memories are referred to as random-access memory, or RAM.

There is a wide range of secondary storage devices. Typical hardware devices are rotating electromechanical devices. Magnetic tapes, disks, and drums are the secondary storage hardware most often used in computer systems for sequential processing. Magnetic tape, which was invented by the Germans during World War II for sound recording, is the oldest secondary storage medium in common use. Data are recorded in the form of small mag-netized "dots" that can be arranged to represent coded patterns of bits.

Tape devices range from large-capacity, high-data-rate units used with large data processing systems to cassettes and cartridges used with small systems. Magnetic disk storage, introduced in the early 1960s, has replaced magnetic tape as the main method of secondary storage. As contrasted with magnetic tapes, magnetic disks can perform both sequential and random processing. They are classified as moving-head, fixed-head, or combination moving-head and fixed-head devices. Magnetic disks are the predominant secondary storage media. They include flexible or floppy disks, called diskettes. The "floppies" were introduced by IBM in 1972 and are still a popular storage medium to meet the demands of the microcomputer market.

7. Ответьте на вопросы, используя информацию текста.

1. How are storage media classified? 2. How is the cost of storage devices expressed? 3. What is the access time for storage media? 4. How does the storage capacity range? 5. What are the two main types of storage devices? 6. What are electronic storage devices? 7. What are the principal primary storage circuit elements? 8. What are the main secondary storage devices? 9. What is the oldest secondary medium and when was it invented? 10. What is a floppy?

8. Найдите в тексте английские эквиваленты следующих слов и словосочетаний.

Запоминающие устройства; носители памяти; первичные ЗУ; вторичные

ЗУ; время доступа; стоимость ЗУ; диапазон емкости памяти; архивная память; движущиеся механические части; вращающиеся магнитные ленты и диски; по этим причинам; твердотельные устройства; магнитные сердечники; полупроводники; оперативное ЗУ; аппаратное обеспечение вторичной памяти; звукозапись; намагниченные точки; представлять зашифрованную комбинацию единиц информации; в отличие от магнитных лент; последовательная и произвольная обработка; устройства с движущейся и фиксированной головкой; удовлетворять потребности; гибкий диск.

9. Выполните перевод текста.

DIGITAL COMPUTER OPERATION

1. A digital computer is a machine capable of performing operations on data represented in digital or number form. The individual operations performed by a digital computer are very simple arithmetic or logical processes involving the manipulation of the bits in words or characters of information. The great power of any digital computer rests in the ability to store large volumes of data and to perform these operations at extremely high speed.

In most electronic digital computers the method of number representation is based on the system of binary notation. The binary notation system is most widely used because of the convenience in constructing logic circuits and storage devices capable of handling data in this form. For example, a magnetic memory unit consists of many thousand individual magnetic cells, each of which can be energized in either of two ways to represent the binary digits 0 or 1. If these cells are grouped to form words or binary coded characters, information can be stored for processing in units of specified size. In the same way, digital data can be recorded as a series of magnetized spots on a magnetic tape or a magnetic disk.

2. The computer has pervaded most fields of human activity and is the most important innovation of our age. Born out of the technology of communication, it is capable of handling enormous amounts of information at tremendous speeds. What makes it so potent is the fact that a single mechanism can perform any information-processing task. The same mechanism can control industrial processes, guide space vehicles or help to teach children. This diversity of tasks is made possible by the simple idea of the stored program.

A program is the enumeration of determining commands. It specifies the method used for the solution of a problem in detail. When the machine is in operation, both the commands and the numbers to be processed are constantly being taken out of and put into a depository of information known as a memory.

It can be seen that the processes performed by a digital computer are essentially simple. These operations can be performed at extremely high speeds and with a high degree of coordination between the different functional units of the hardware system, and this ability means that digital computers can undertake highly complex tasks.

10. Составьте на английском языке план текста, выделив его основные темы. План можно составить в вопросной, назывной или тезисной форме. Познакомьтесь с образцами планов, представленных после текста; сравните со своим планом.

MEMORY

It is interesting to note that memory, one of the basic components of the computer, is often called storage. It stores calculation program, the calculation formulae, initial data, intermediate and final results. Therefore, the functions of the computer memory may be classified in the following way. Firstly, the computer memory must store the information transmitted from the input and other devices. Secondly, memory should produce the information needed for the computation process to all other devices of the computer.

Generally, memory consists of two main parts called the main, primary or internal, memory and the secondary or external memory. The advantage of the primary memory is an extremely high speed. The secondary memory has a comparatively low speed, but it is capable of storing far greater amount of information than the main memory. The primary storage takes a direct part in the computational process. The secondary storage provides the information necessary for a single step in the sequence of computation steps.

The most important performance characteristics of a storage unit are speed, capacity, and reliability. Its speed is measured in cycle time. Its capacity is measured by the number of machine words or binary digits. Its reliability is measured by the number of failures (отказ) per unit of time.

План в вопросной форме
1. What is memory?
2. What is the function of memory?
3. What are the main parts of memory?
4. What are advantages and disadvantages of a storage unit?
5. What are their functions?
6. What are performance characteristics of the main and secondary memory?
7. What units are performance characteristics measured by?

План в назывной форме
1. The definition of memory.
2. The main functions of memory.
3. Classification of memory.
4. Advantages and disadvantages of memory components.
5. The functions of memory components.
6. Performance characteristics of memory.
7. The units for measuring the performance characteristics of memory.

План в тезисной форме
1. Memory is one of the basic components of the computer.
2. Memory stores initial data, intermediate and final results.
3. It produces the information needed to other devices of the computer.
4. Memory consists of the main (internal) and the secondary (external) storage.
5. The main memory has high speed, but small capacity; the secondary memory possesses lower speed but greater capacity.
6. The main memory performs computation; the secondary memory provides information sequentially, step by step.

7. The performance characteristics — speed, capacity, and reliability — are measured by cycles, binary digits, and the number of failures per unit of time.

CENTRAL PROCESSING UNIT

1.Прочитайте текст и скажите, какой компонент составляет сердце компьютерной системы и в чем заключается его функция.

central processing unit (CPU) — центральный процессор (ЦП)
interchangeably— взаимозаменяемым образом
precisely— точно
internal memory — внутренняя память, внутреннее ЗУ
activity — деятельность, работа, действия операции
 to issue — посылать (сигнал); выводить, выдавать (сообщение)
 response — ответ, отклик, реакция; отвечать, реагировать
to interpret— интерпретировать, истолковывать
according to— согласно, в соответствии с
level — уровень, степень, мера; выравнивать
input-output port — порт ввода-вывода
control unit (CU)— устройство управления
arithmetic-logic unit (ALU) — арифметико-логическое устройство
switch — переключатель, коммутатор; переключать; переходить
direct — направлять, адресовать, указывать; прямой, непосредственный
step-by-step operations — пошаговые операции
to select — выбирать, выделять (на экране)
on the other hand — с другой стороны
exponentiation — возведение в степень
call for — требовать; предусматривать
to load — загружать, выполнять загрузку

Text CENTRAL PROCESSING UNIT

It is well-known in computer science that the words "computer" and "processor" are used interchangeably. Speaking more precisely, "computer" refers to the central processing unit (CPU) together with an internal memory.

The internal memory, control and processing components make up the heart of the computer system. Manufactures design the CPU to control and carry out basic instructions for their particular computer.

The CPU coordinates all the activities of the various components of the computer. It determines which operations should be carried out and in what order. The CPU controls the operation of the entire system by issuing commands to other parts of the system and by acting on responses. When required, it reads information from the memory, interprets instructions, per-forms operations on the data according to the instructions, writes the results back into the memory, and moves information between memory levels or through the input-output ports.

In digital computers the CPU can be divided into two functional units called the control unit (CU) and the arithmetic-logic unit (ALU). These two units are made up

of electronic circuits with millions of switches that can be in one of two states, either on or off.

The function of the CU within the central processor is to transmit coordinating control signals and commands. The control unit is that part of the computer that directs the sequence of step-by-step operations of the system, selects instructions and data from memory, interprets the program instructions, and controls the flow between main storage and the arithmetic-logic unit.

The ALU, on the other hand, is that part of the computer in which the actual arithmetic operations, namely, addition, subtraction, multiplication, division, and exponentiation, called for in the instructions are performed.

Programs and the data on which the CU and the ALU operate, must be in internal memory in order to be processed. Thus, if located in secondary memory devices, such as disks or tapes, programs and data are first loaded into internal memory.
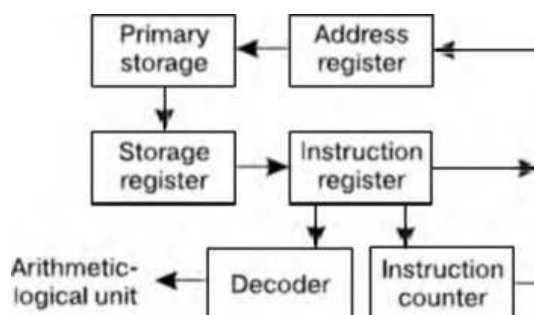

Fig. 12. Control unit functional diagram

2. Ответьте на вопросы, используя информацию текста.
1. What words in computer science are used interchangeably and why? 2. What components make up the heart of the computer system? 3. What is the function of the CPU? 4. In what way does the CPU control the operation of the whole system? 5. What is the sequence of operations the CPU performs (use five verbs)? 6. What are the CPU functional units made of? 7. What is the function of the CU? 8. What operations are performed in the ALU? 9. Where are data processed? 10. Where are data to be processed loaded into?

3. Найдите в тексте английские эквиваленты следующих слов и словосочетаний.

Хорошо известно; к компьютеру относятся; внутренняя память; составлять суть; выполнять; координировать деятельность; определяя, в каком порядке; управлять работой всей системы; при необходимости; в соответствии с командами; уровни памяти; порт ввода-вывода; переключатели; режим включения или выключения; передавать сигналы; указывать последовательность пошаговых операций; основная память; управлять ходом выполнения программы; с другой стороны; выполнять вычитание, сложение, возведение в степень, деление, умножение; для того чтобы.

4. Вспомните значения новых слов и попытайтесь перевести словосочетания, употребляемые с этими словами.

Direction: backward direction; clockwise direction; counterclockwise direction; data direction; forward direction; inverse/reverse direction; negative direction; positive direction; printing direction; transmission direction.

Level: access level; application level; data level; device level; difficulty level; error level; function level; hardware level; high level; input level; output level; performance level; presentation level; program level; protection level; resource level; security level; software level; structural level; system level; transmission level.

Processor: arithmetic processor; central processor; command processor; control processor; data processor; error processor; general-purpose processor; special-purpose processor; image processor; language processor; mail processor; message processor; numeric processor; parallel processor; peripheral processor; text processor.

Switch: to switch between programs; to switch between windows; to switch disks; to switch on; to switch off; to switch over; binary switch; command switch.

Step: conversion step; final step; procedure step; program step; programming step; step by step; one step at a time; to step down; to step out; to step up; to take steps.

5. Прочитайте текст и скажите, о каких компонентах центрального процессора и их назначении вы узнали. Переведите текст.

to manage — управлять; организовывать; справляться

to obtain — получать, достигать, добиваться

to cause — заставлять, вынуждать, вызывать, быть причиной; причина, основание

flow — поток; ход (выполнения программы); последовательность

counter — счетчик

register — регистр, устройство регистрации, счетчик, дат-чик

instruction register — регистр команд

storage register — регистр памяти, запоминающий регистр

address register — адресный регистр

temporarily — временно

decoder — дешифратор

operand address — адрес (хранения) операнда

mark — отметка, маркер, знак; помечать, обозначать, выделять

timing mark — отметка времени

accumulate — накапливать(ся), суммировать, собираться

accumulator — сумматор, накапливающий регистр, устройство суммирования

compare — сравнивать, соотноситься

comparer — компаратор, устройство сравнения

content - содержимое, смысл; объем, количество

involve — включать, содержать, заключать (в себе)

core — суть; основная часть; ядро; оперативная память

add — складывать, суммировать, прибавлять, присоединять

added — добавочный, дополнительный

adder — сумматор, блок суммирования

at least — по крайней мере

Text THE CPU MAIN COMPONENTS

As it is known, the two functional units of the CPU are the control unit (CU) and the arithmetic-logical unit (ALU). The control unit manages and coordinates the entire computer system. It obtains instructions from the pro-gram stored in main memory, interprets the instructions, and issues signals that cause other units of the system to execute them.

The control unit operates by reading one instruction at a time from memory and taking the action called for by each instruction. In this way it controls the flow between the main storage and the arithmetic-logical unit.

The control unit has the following components: a counter that selects the instructions, one at a time, from memory; a register that temporarily holds the instructions read from memory while it is being executed; a decoder that takes the coded instruction and breaks it down into individual commands necessary to carry it out; a clock, which produces marks at regular intervals. These timing marks are electronic and very rapid.

The sequence of control unit operations is as follows. The next instruction to be executed is read out from primary storage into the storage register. The instruction is passed from the storage register to the instruction register. Then the operation part of the instruction is decoded so that the proper arithmetic or logical operation can be performed. The address of the operand is sent from the instruction register to the address register. At last the instruction counter register provides the address register with the address of the next instruction to be executed.

The arithmetic-logic unit (ALU) executes the processing operations called for by the instructions brought from main memory by the control unit. Binary arithmetic, the logical operations, and some special functions are performed by the arithmetical-logical unit.

Data enter the ALU and return to main storage through the storage register. The accumulator serving as a register holds the results of processing ope-rations. The results of arithmetic operations are returned to the accumulator for transfer to main storage through the storage register. The comparer performs logical comparisons of the contents of the storage register and the accumulator. Typically, the comparer tests for conditions such as "less than," "equal to," or "greater than."

So as you see the primary components of the arithmetic-logical unit are banks of bistable devices, which are called registers. Their purpose is to hold the numbers involved in the calculation and hold the results temporarily until they can be transferred to memory. At the core of the ALU is a very high speed binary adder, which is used to carry out at least the four basic arithmetic functions (addition, subtraction, multiplication, and division). The logical unit consists of electronic circuitry which compares information and makes decisions based upon the results of the comparison.
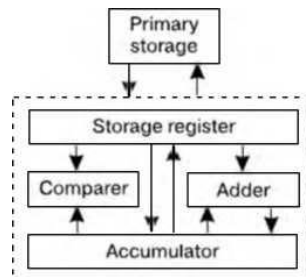
Fig. 13. Arithmetic-logic unit functional diagram

6. Ответьте на вопросы, используя информацию текста.

1. What are the functional units of CPU? 2. What is the function of CU? 3. How does CU operate? 4. What is the function of a counter? 5. What role does a decoder play? 6. What is the sequence of CU operations? 7. What is the function of the arithmetic-logical unit? 8. What operations are performed by ALU? 9. What primary components does ALU consist of? 10. What is the function of an accumulator/comparer?

7. Найдите в тексте английские эквиваленты следующих слов и словосочетаний.

Функциональные блоки; устройство управления; арифметико-логическое устройство; управлять работой всей системы; получать команды; основная память; посылать сигналы; считывать команды поэтапно; таким образом; временно сохранять информацию; производить пометки через равные промежутки времени; последовательность операций; регистр памяти; регистр команд; адресный регистр; счетчик; датчик; дешифратор; адрес операнда; высокоскоростной двоичный сумматор; по крайней мере; вычитание; сложение; умножение; деление; принимать решения; результаты сравнения.

8. Вспомните значения новых слов и попытайтесь перевести словосочетания, употребляемые с этими словами.

Register: address register; base register; clock register; command/instruction register; counter register; CPU register; hardware register; input/ output register; memory register; operand register; general-purpose register; special-purpose register.

Counter: binary counter; character counter; data counter; instruction counter; pulse counter; sequence counter; storage counter; software counter; time-out counter.

Selection: color selection; directory selection; drive selection; file selection; function selection; keyboard selection; menu selection; security selection.

Management: data management; database management; disk management; error management; information management; memory management; network management; resource management; task management; window management.

9. Найдите в текстах 1 и 2 слова, близкие по значению к следующим.

Verbs: to work; to control; to receive; to keep; to send; to perform; to demand; to choose; to supply; to pass; to name; to include; to apply; to come back; to found; to explain; to form; to define; to arrange.

Nouns: computer; answer; commands; memory; element; device; information; state; aim; heart; solution; computation.

Adjectives: main; whole; separate; quick; correct; large; main (storage); following; every; following; specific; different; real.

10. Прочитайте текст и составьте к нему план в назывной форме. Прочитайте текст еще раз, разверните пункты плана и составьте реферат на русском языке, озаглавьте текст.

It is known that one of the fundamental parts of the computer is a control unit. This unit controls the computation process automatically, without man's participation. It sends signals to all other parts of the computer to specify what they must do. First of all, the control unit tells the main memory what data must be transferred to the arithmetic-logical unit and other devices. Then it enables the arithmetic-logical unit to perform the required operation. Finally, it places the obtained results in the main memory.

It is important to note that the control unit operation is determined by an algorithm of a problem solution. The algorithm is a sequence of arithmetic and logical operations. These operations must be performed on the initial data for solving the problem.

Description of an algorithm in a form acceptable by a computer is called a program. A program is a list of sequential computer instructions enabling a computer to solve a problem. In order to be acceptable by the computer instructions must be encoded into a digital form.

In conclusion it should be pointed out that the main feature of a computer is automatic control of the problem solution process. It is based on the programmed-control principle.

11. Выполните письменный перевод текстов. Озаглавьте тексты.

1. In 1960s advances in microelectronic components led to the development of the minicomputer, followed more recently by an even smaller micro-computer. Both have filled a need for small but relatively flexible processing systems able to execute comparatively simple computing functions at lower costs.

In 1971 Intel Corporation delivered the first microprocessor, the 4004. All the logic to implement the central processing unit of a tiny computer was put onto a single silicon chip less than % inch square. That design was soon followed by many others. The progress toward smaller computers is continuing, designers are working at nano-computers and pico-computers.

When the central processing unit of a computer is implemented in a single, or very small number of integrated circuits, we call it a microprocessor. When a computer includes a microprocessor as its major component, such device is called a microcomputer.

Today the hardware in data-processing machines is built out of micro-electronic devices. Advances in microelectronic devices give rise to advances in data-processing machinery.

2. The computer has made it possible to mechanize much of the information interchange and processing that constitute the nervous system of our society.

The versatility and convenience of the microprocessor has changed the entire architecture of modern computer systems. No longer is the processing of information carried out only in the computer's central processing unit. Today there is a trend

toward distributing more processing capability throughout a computer system, with various areas having small local processors for handling operations in those areas.

There are a number of advantages of distributed processing. First, since many elements of the computer can be working on different portions of the same task, the work may be done faster. Second, if one element in the network malfunctions, its workload can be shifted to another element or shared among several elements, so that the entire work is relatively immune to failure. Third, the network can be small enough to be contained within a single laboratory or building, or it can be spread out over a wide area.

INPUT-OUTPUT UNITS

1. Прочитайте текст и скажите, какие устройства относятся к сфере ввода-вывода информации.

environment — среда, окружение; режим работы
external environment — внешняя среда
human-related — (взаимо)связанный с человеком
human-independent — независимый от человека
remote terminal — удаленный терминал
reel of magnetic tape — бобина с магнитной лентой
input-output interface — интерфейс (сопряжение, место стыковки) ввода-вывода
scan — просматривать; сканировать; развертывать
scanner — сканер, устройство оптического считывания
bar-code scanner / bar-code reader — устройство считывания штрих-кода
regardless of — несмотря на, независимо от
to match characteristics — сопоставлять параметры
similarly — подобным образом, так же, аналогично
to fall between — падать, попадать в интервал между
card reader — устройство считывания платы (карты)
line printer — построчный принтер, принтер печатания строки
page printer — принтер с постраничной печатью
character printer — принтер с посимвольной печатью
optical character reader — оптическое считывающее устройство текста
optical mark reader — оптическое считывающее устройство знаков
visual display — визуальный индикатор
digitizer — аналого-цифровой преобразователь, сканер
keyboard input device — клавишное устройство ввода
plotter — графопостроитель
voice recognition and response
unit — устройство распознавания голоса и реагирования

Text INPUT-OUTPUT ENVIRONMENT

Data and instructions must enter the data processing system, and information must leave it. These operations are performed by input and output (I/O) units that link the computer to its external environment.

The I/O environment may be human-related or human-independent. A remote banking terminal is an example of a human-related input environment, and a printer is an example of a device that produces output in a human-readable format. An example of a human-independent input environment is a device that measures traffic flow. A reel of magnetic tape upon which the collected data are stored in binary format is an example of a human-independent output.

Fig. 14. Input-output environment

Input-output interfaces. Data enter input units in forms that depend upon the particular device used. For example, data are entered from a keyboard in a manner similar to typing, and this differs from the way that data are entered by a bar-code scanner. However, regardless of the forms in which they receive their inputs, all input devices must provide a computer with data that are trans-formed into the binary codes that the primary memory of the computer is designed to accept. This transformation is accomplished by units called I/O interfaces. Input interfaces are designed to match the unique physical or electrical characteristics of input devices to the requirements of the computer system. Similarly, when output is available, output interfaces must be designed to reverse the process and to adapt the output to the external environment. These I/O interfaces are also called channels or input-output processors (IOP).

The major differences between devices are the media that they use and the speed with which they are able to transfer data to or from primary storage.

Input-output device speed. Input-output devices can be classified as high-speed, medium-speed, and low-speed. The devices are grouped according to their speed. It should be noted that the high-speed devices are entirely electronic in their operation or magnetic media that can be moved at high speed. Those high-speed devices are both input and output devices and are used as secondary storage. The low-speed devices are those with complex mechanical motion or operate at the speed of a human operator. The medium-speed devices are those that fall between — they tend to have mechanical moving parts which are more complex than the high-speed devices but not as complex as the low-speed.

High-speed devices: magnetic disk; magnetic tape.

Medium-speed devices: card readers; line printers; page printers; computer output microfilms; magnetic diskette; optical character readers; optical mark readers; visual displays.

Low-speed devices: bar-code readers; character printers; digitizers; key-board input devices; plotters; voice recognition and response units.

2. Дайте ответы на следующие вопросы.

1. What is the purpose of input and output devices? 2. What types of input-output devices do you know? 3. Why are data transformed into a binary code while entering the input device? 4. What is an example of a human in-dependent output? 5. What is an I/O interface? 6. What are the major differences between the various I/O devices? 7. What types of I/O devices tend to be high-speed devices? 8. What type of devices tends to be low-speed devices?

3. Найдите в тексте английские эквиваленты следующих словосочетаний.

Среда устройств ввода-вывода; система обработки информации; внешняя среда; связан с человеком; независим от человека; удаленный банковский терминал; измерять поток данных; бобина с магнитной лентой; хранить собранную информацию; двоичный формат; интерфейс ввода-вывода; вводить с клавиатуры; устройство считывания штрих-кода; несмотря на; преобразовать в двоичный код; сопоставлять параметры; подобным образом; интерфейс вывода; изменить процесс в обратном направлении; настроить устройство ввода-вывода к внешней среде; главное отличие; основная память; вторичная память; низкоскоростные устройства; в соответствии.

4. Вспомните значения новых слов и попытайтесь перевести словосочетания, употребляемые с этими словами.

Environment: application environment; communication environment; execution environment; external environment; hardware environment; interface environment; management environment; multimedia environment; network environment; processing environment; security environment; software environment; user environment.

Interface: channel interface; common interface; data interface; database interface; display interface; external interface; flexible interface; floppy-disk interface; general-purpose interface; hardware interface; low-level interface.

Scanner: bar-code scanner; black-and-white scanner; color scanner; desktop scanner; hand scanner; laser scanner; manual scanner; optical scanner; visual scanner.

Terminal: batch terminal; desktop terminal; display terminal; printer terminal; remote terminal; security terminal; logical terminal; text terminal.

5. Прочитайте текст, составьте реферат на английском языке, озаглавьте текст. Для составления реферата используйте следующие клише.

The text / article under review... (gives us a sort of information about...)

The article deals with the problem...

The subject of the text is...

At the beginning (of the text) the author describes... (dwells...; explains...; touches upon...; analyses...; comments...; characterizes...; underlines...; reveals...; gives account of...)

The article begins with the description of..., a review of..., the analysis of...

The article opens with...

Then (after that, further on, next) the author passes on to...,

gives a detailed (thorough) analysis (description), goes on to say that...

To finish with, the author describes...

At the end of the article the author draws the conclusion that...;

the author sums it all up (by saying...)
In conclusion the author...

As it is well-known, a computer cannot perform or complete any useful work unless it is able to communicate with its external environment. All data and instructions enter and leave the central processing unit through primary storage. Input-output devices are needed to link primary storage to the environment, which is external to the computer system. So input devices are used to enter data into primary storage. Output units accept data from primary storage to provide users with information or to record the data on a secondary storage device. Some devices are used for both the input and output functions.

The data with which these devices work may or may not be in a form that humans can understand. For example the data that a data entry operator keys into the memory of a computer by typing on a keyboard are readable by humans. However, the data that tell a computer about the performance of an automobile engine are not in a form that humans can read. They are electrical signals from an analog sensor. Similarly, output may be on a printed page, which humans can read easily, or upon some other medium where the data are not visible, such as on magnetic tape or disk.

As we know, all of the data flow from input to final output is managed by the control unit in the CPU. Regardless of the nature of the I/O devices, special processors called I/O interfaces are required to convert the input data to the internal codes used by the computer and to convert internal codes to a format which is usable by the output device.

6. Прочитайте текст и назовите приборы, которые служат для введения информации в компьютер. Переведите текст.

keyboard — клавиатура

key — клавиша, кнопка, переключатель; ключевой, основной, главный; переключать; набирать на клавиатуре

manipulator — манипулятор, блок обработки

trackball — трекбол

touch panel — сенсорная панель

graphic plotting tables — графические планшеты

sound card — звуковая карта (плата)

enable — разрешать, позволять, допускать, делать возможным

operating mode — режим работы

press a button — нажать на кнопку

keep buttons depressed — удерживать кнопки в нажатом состоянии

double-click — двойное нажатие

erase images — удалять, стирать изображение (объект)

roller — ролик, валик

track — следить, прослеживать, проходить; след, траектория, путь, дорожка; соединение

by means of — посредством

permitting capacity — разрешающая способность

Text. INPUT DEVICES

There are several devices used for inputting information into the computer: a keyboard, some coordinate input devices, such as manipulators (a mouse, a track ball), touch panels and graphical plotting tables, scanners, digital cameras, TV tuners, sound cards, etc.

When personal computers first became popular, the most common device used to transfer information from the user to the computer was the keyboard. It enables inputting numerical and text data. A standard keyboard has 104 keys and three more ones informing about the operating mode of light indicators in the upper right corner.

Later when the more advanced graphics became to develop, user found that a keyboard did not provide the design capabilities of graphics and text representation on the display. There appeared manipulators, a mouse and a track ball, that are usually used while operating with graphical interface. Each software program uses these buttons differently.

The mouse is an optic-mechanical input device. The mouse has three or two buttons which control the cursor movement across the screen. The mouse provides the cursor control thus simplifying user's orientation on the display. The mouse's primary functions are to help the user draw, point and select images on his computer display by moving the mouse across the screen.

In general software programs require to press one or more buttons, sometimes keeping them depressed or double-click them to issue changes in commands and to draw or to erase images. When you move the mouse across a flat surface, the ball located on the bottom side of the mouse turns two rollers. One is tracking the mouse's vertical movements; the other is tracking horizontal movements. The rotating ball glides easily, giving the user good control over the textual and graphical images.

In portable computers touch panels or touch pads are used instead of manipulators. Moving a finger along the surface of the touch pad is transformed into the cursor movement across the screen.

Graphical plotting tables (plotters) find application in drawing and input-ting manuscript texts. You can draw, add notes and signs to electronic documents by means of a special pen. The quality of graphical plotting tables is characterized by permitting capacity that is the number of lines per inch, and their capability to respond to the force of pen pressing.

Scanner is used for optical inputting of images (photographs, pictures, slides) and texts and converting them into the computer form.

Digital video cameras have been spread recently. They enable getting video images and photographs directly in digital computer format. Digital cameras give possibility to get high-quality photos.

Sound cards produce sound conversion from analog to digital form. They are able to synthesize sounds. Special game-ports and joysticks are widely used in computer games.

7. Ответьте на вопросы, используя информацию текста.

1. What devices are used for inputting information into the computer? 2. What was the most common device in early personal computers? 3. What is the function of a

keyboard? 4. Why do many users prefer manipulators to keyboard? 5. How does the mouse operate? 6. What is its function? 7. What role does the ball on the bottom of the mouse play? 8. What is used in portable computers instead of manipulators? 9. What is the touch pad's principle of operation? 10. Where do graphical plotting tables find application?

8. Найдите в тексте английские эквиваленты следующих слов и словосочетаний.

Введение информации; координатные устройства ввода; манипуляторы; мышь; трекбол; сенсорная панель; графические планшеты; цифровые камеры; сканеры; ТВ-тюнеры; стандартная клавиатура; числовая и текстовая информация; световые индикаторы; клавиши; режим работы; презентация текста на мониторе; графический интерфейс; программные средства; оптико-механическое устройство ввода; управлять движением курсора; упрощать ориентацию пользователя на экране; указывать и выбирать изображения; удерживать кнопки в нажатом состоянии; двойное нажатие; стирать объекты; ровная поверхность; вращать ролики; следить за вертикальным движением; легко скользить; портативный компьютер; рукописный текст; посредством; разрешающая способность.

10. Прочитайте текст и назовите типы принтеров и их назначение.

human-readable form — удобная для чтения форма

performance — (рабочая) характеристика, производительность, быстродействие, скорость работы, пропускная способность

character printer — принтер с посимвольной печатью, символьный принтер

line printer — принтер с построчной печатью

page printer — принтер с постраничной печатью

(non) impact printer — (бес)контактный принтер

letter-quality printer — принтер с типографским качеством печати

dot-matrix printer — точечно-матричный принтер

ink-jet printer — струйный принтер

laser-beam printer — лазерный принтер

to identify — идентифицировать, распознавать, обозначать

approach — подход, метод, принцип; приближение

at a time — за один раз, одновременно

to cause — вызывать, приводить к (чему-л.), заставлять, вынуждать

to strike against a ribbon — ударять по ленте

typewriter — печатное устройство

to spray drops of ink — распылять капли чернил

to affect — влиять, воздействовать, сказываться на (чем-л.)

technique — метод, способ, техника, методика, технология

printer output — вывод на печать, распечатываемые данные

Text OUTPUT DEVICES. PRINTERS

Printers provide information in a permanent, human-readable form. They are the most commonly used output devices and are components of almost all computer systems. Printers vary greatly in performance and design.

We will classify printers as character printers, line printers, and page printers in order to identify three different approaches to printing, each with a different speed range. In addition, printers can be described as either impact or nonimpact. Printers that use electromechanical mechanisms that cause hammers to strike against a ribbon and the paper are called impact printers. Nonimpact printers do not hit or impact a ribbon to print.

Character printers print only one character at a time. A typewriter is an example of a character printer. Character printers are the type used with literally all microcomputers as well as on computers of all sizes whenever the printing requirements are not large. Character printers may be of several types. A letter-quality printer is a character printer which produces output of typewriter quality. Letter-quality printers typically have speeds ranging from 10 to 50 characters per second. Dot-matrix printers form each character as a pattern of dots. These printers have a lower quality of type but are generally faster printers than the letter-quality printers — in the range of 50 to 200 characters per second. One of the newest types of character printer is the ink-jet printer. It sprays small drops of ink onto paper to form printed characters. The ink has a high iron content, which is affected by magnetic fields of the printer. These magnetic fields cause the ink to take the shape of a character as the ink approaches the paper.

Line printers are electromechanical machines used for high-volume paper output on most computer systems. Their printing speeds are such that to an observer they appear to be printing a line at a time. They are impact printers. The speeds of line printers vary from 100 to 2,500 lines per minute. Line printers have been designed to use many different types of printing mechanisms. Two of the most common print mechanisms are the drum and the chain. Drum printers use a solid, cylindrical drum, rotating at a rapid speed. Speeds of drum printers vary from 200 to over 2,000 lines per minute. Chain printers have their character set on a rapidly rotating chain called a print chain. Speeds of chain printers range from 400 to 2,400 lines per minute.

Page printers are high-speed nonimpact printers. Their printing rates are so high that output appears to emerge from the printer a page at a time. A variety of techniques are used in the design of page printers. These techniques, called electro photographic techniques, have developed from the paper copier technology. Laser-beam printers use a combination of laser beam and electro photographic techniques to create printer output at a rate equal to 18,000 lines per minute.

11. Ответьте на вопросы, используя информацию текста.
1. What are the three types of printers? 2. What is a letter-quality printer? 3. What is a dot-matrix printer? 4. What type of printer is the most common with microcomputer systems? 5. What is the most common printer type used on large computer systems? 6. What is an impact printer? Give an example. 7. What is a nonimpact printer? Give examples. 8. What are the most widely used printers? 9. How do you distinguish between a letter-quality printer and a dot-matrix printer? 10. Which of these printers is slower? 11. What types of character printers do you know? 12. How are printed characters formed by means of an ink-jet printer? 13. What are the main types of a line printer? Which of them is faster? 14. What techniques are used in the operation of page printers?

12. Найдите в тексте английские эквиваленты следующих словосочетаний.

Удобная для восприятия человека форма; наиболее часто употребляемые устройства вывода информации; различаться по рабочим характеристикам и внешнему виду; принтеры с посимвольной печатью; принтеры с построчной печатью; принтеры с постраничной печатью; различные методы печати; диапазон скорости; принтеры контактные и бесконтактные; ударять по ленте; печатать по одному символу; буквально все компьютеры; а также; требования печати; принтер с типографским качеством печати; точечно-матричные принтеры; струйные принтеры; разбрызгивать капли чернил; высокое содержание железа; магнитные поля; принимать форму символа; кажется, печатают по строчке; барабанный принтер; цепочечные принтеры; лазерный принтер.

13. Вспомните значения новых слов и попытайтесь перевести словосочетания с этими словами.

Approach: comprehensive approach; database approach; educational (training) approach; general approach; graphic approach; self-study approach; step-by-step approach; trial-and-error approach.

Performance: application performance; computer performance; device performance; disk performance; display performance; error performance; execution performance; memory performance; network performance; processor performance.

Printer, black-and-white printer; color printer; character (at-a-time) printer; dot-matrix printer; graphical (image) printer; impact printer; ink-jet printer; laser printer; letter-quality printer; matrix printer; network printer; page (at-a-time) printer.

Technique: advanced technique; analog technique; computing technique; display (video) technique; formatting technique; hardware technique; measuring technique; modeling (simulation) technique; multimedia technique; numerical technique; programming technique; scanning technique; software technique; testing technique.

14. Переведите предложения, содержащие инфинитивный оборот Nominative with the Infinitive (сложное подлежащее).

1. Printers are known to vary greatly in performance and design. 2. They are expected to be the most commonly used devices. 3. Magnetic fields are supposed to affect a high iron content of the ink. 4. The ink-jet printer is stated to be one of the newest types of character printers. 5. Electro photographic techniques proved to have developed from the paper copier technology. 6. An impact printer is considered to produce a printed character by impacting a character font against the paper. 7. Dot-matrix printers seem to have a lower quality of type. 8. The most common printer type used on larger systems is sure to be the line printer. 9. A lot of techniques are believed to be used in the design of printers. 10. A laser is certain to be an acronym for light amplification by stimulated emission of radiation.

15. Прочитайте текст и составьте письменно реферат на английском языке.

MAGNETIC MEDIA DEVICES

Some of the devices mentioned above can perform both the input and output functions. Magnetic disk, magnetic diskette, and magnetic tape are examples of such

devices. Magnetic disks, diskettes, and tapes can record data as output from primary storage and can also serve as input devices returning the data to primary storage.

Data are recorded on magnetic disks and magnetic tapes either by out-putting the data from primary storage or by using a data recorder. Data recorders are not input devices, and they are not connected to the computer system. Instead they are offline recorders. The magnetic media recording de-vices are key-to-disk, key-to-diskette, and key-to-tape machines.

Key-to-disk devices are used as data-recording stations in multistation shared-processor systems. They are able to correct data before storing it on a magnetic disk and before its entry into the main computer system.

Key-to-diskette systems store data on flexible disks, called diskettes. Diskettes are inexpensive and reusable.

Key-to-tape devices can record data on reels, on cassettes, and on tape cartridges. The magnetic tape reels produced by key-to-tape systems are in a computer-compatible format for subsequent direct data input into a computer. However, data on cartridges and cassettes often are transferred to higher-speed media, such as a full-sized reel of magnetic tape or magnetic disk, for data transfer to the computer.

16. Выполните перевод следующего текста письменно.

KEYBOARD DEVICES

1. There is a wide variety of keyboard devices, or terminals, available for use in entering data directly into a computer. The visual display terminal (VDT) is the most popular type of I/O device in use today. It consists of a typewriter-like keyboard for inputting and a cathode ray tube (CRT) for displaying output data. Each character entered through the keyboard is also displayed on the CRT. When keyed, the data are held in a small memory, called a buffer, within the terminal itself. The data are not sent on to the computer until the operator presses an enter key on the keyboard. This allows the operator the opportunity to proofread or verify the data being entered by reading the data displayed on the screen. There are three major uses of VDTs: alphanumeric displays, graphic displays, and input through a light pen.

Alphanumeric displays. The most common use of the visual display terminal is to display alphanumeric data, that is, character data. Because of their relatively fast output rates and their ability to provide a viewer with an "instant" output, video displays have replaced printers for many applications.

Graphic displays. Visual display terminals with a graphic display capability provide a very powerful and versatile tool for many users. Graphic-display devices provide not only a means of displaying high-resolution drawings but also the capability of manipulating and modifying the graphic display. The businessperson can use the graphic display to present data in the form of line charts, bar charts, or pie charts. Graphic displays can be very effective in in-formation systems for business manager.

2. Different types of keyboard devices, such as visual display terminals, teleprinter terminals, and point-of-sale devices are among the keyboard devices.

A light pen is a photosensitive pen-like instrument which can sense a po-sition on the cathode ray tube (CRT) when the end of the pen is held against the screen. The light pen is an input device. By sensing the position on the screen when you touch it by the light pen, you are inputting data to the main storage. The light pen is commonly used by engineers to modify designs.

Teleprinter terminals. There are situations where it is desirable to have a printed copy of data outputted to a terminal. If a user finds a printed copy to be required, the solution could be a teleprinter terminal. A teleprinter terminal has a keyboard for input and a typewriter-like printer for output. These printers are character printers and are therefore slower output devices than CRT displays.

A point-of-sale (POS) device is the electronic equivalent of a cash register; however it is capable of capturing more data than a cash register. Most point-of-sale devices are online terminals attached to a computer for processing the transaction while the customer is making the purchase. The significant features of most of the current electronic POS devices include: the capability of entering extensive information about the sale, the guiding of the operator through the possible transactions by a series of lighted indicators or messages, a provision for transmission of the data to a central computer, and the provision for a local computational capability such as price extensions and tax calculations.

PERSONAL COMPUTERS

1. Прочитайте текст и скажите, существуют ли отличия персональных компьютеров от больших компьютеров и в чем они заключаются.

personal computers — персональные компьютеры
competitive operating system — конкурирующая операционная система
IBM (International Business Machine) — фирма по производству компьютеров
to enter the fray — вступать в борьбу
computer of choice — лучший компьютер
to fall by the wayside — оставаться в стороне; уступать дорогу
to survive onslaught — выдерживать конкуренцию
word size — размер слова, разрядность двоичного слова
soft-copy output — вывод электронной, программно-управляемой копии
hard-copy output — вывод «твердой», печатной копии
online storage — неавтономное хранение данных в ЗУ
offline storage — автономное хранение данных отдельно от компьютера
input media — носитель для входных данных
output media — носитель для выходных данных
general-purpose — универсальный, общего назначения
stand-alone — автономный
to plug in — подключать, подсоединять
leisure activities — досуговая деятельность

PERSONAL COMPUTERS

Personal computers are supposed to appear in the late 1970s. One of the first and most popular personal computers was the Apple II, introduced in 1977 by Apple

Computer. During the late 1970s and early 1980s, new models and competitive operating systems seemed to appear daily. Then, in 1981, IBM entered the fray with its first personal computer, known as the IBM PC. The IBM PC quickly became the personal computer of choice, and most other personal computer manufacturers fell by the wayside. One of the few companies to survive IBM's onslaught was Apple Computer, which is sure to remain a major player in the personal computer marketplace. In less than a decade the microcomputer has been transformed from a calculator and hobbyist's toy into a personal computer for almost everyone.

What is a personal computer? How can this device be characterized?

- First, a personal computer being microprocessor-based, its central processing unit, called a microprocessor unit, or MPU, is concentrated on a single silicon chip.

- Second, a PC has memory and word sizes that are smaller than those of minicomputers and large computers. Typical word sizes are 8 or 16 bits, and main memories range in size from 16 K to 512 K.

- Third, a personal computer uses smaller, less expensive and less powerful input, output and storage components than do large computer systems. Most often, input is by means of a keyboard, soft-copy output being displayed on a cathode-ray tube screen. Hard-copy output is produced on a low-speed character printer.

- A PC employs floppy disks as the principal online and offline storage devices and also as input and output media.

- Finally, a PC is a general-purpose, stand-alone system that can begin to work when plugged in and be moved from place to place.

Probably the most distinguishing feature of a personal computer is that it is used by an individual, usually in an interactive mode. Regardless of the purpose for which it is used, either for leisure activities in the home or for business applications in the office, we can consider it to be a personal computer.

2. Ответьте на вопросы, используя информацию текста.

1. When did the first personal computer appear? 2. What was one of the first PC model? 3. What is a personal computer? 4. What are the four main characteristics of a PC? 5. What does the term "microprocessor-based" mean? 6. What are the typical word sizes of a PC? 7. How is input carried out in personal computers? 8. What principle storage devices does PC use? 9. What kind of a system is a PC? 10. What differs personal computers from large computer systems?

3. Найдите в тексте английские эквиваленты следующих слов и словосочетаний.

Конкурирующая операционная система; появляться ежедневно; вступать в борьбу; лучший компьютер; остаться в стороне; выдержать конкуренцию; главный поставщик на компьютерном рынке; игрушка для любителя; микропроцессорный; цельный кристалл (микросхема) из кремния; размер слова; компоненты меньшей мощности; посредством; вывести на экран; низкоскоростной принтер с посимвольной печатью; использовать гибкие диски; приборы (неавтономного хранения данных; универсальный; автономная система; отличительная черта; интерактивный режим; независимо от цели; досуговая деятельность.

4. Прочитайте текст и укажите сферы деятельности, где используются персональные компьютеры.

word processing — обработка текста
telephone dialing — набор номера телефона
security — безопасность, охрана
appliance — устройство, прибор
maintenance — поддержание, сохранение; эксплуатация
application software — прикладные программы
to delete — удалять, стирать, очищать память
to move paragraphs around — менять местами абзацы
accountant — бухгалтер
accounting — бухгалтерский учет
income tax — подоходный налог
stock market forecasting — биржевые прогнозы
worksheet — электронная таблица
scheduling — составление расписания (графика)
computer-assisted instructions — компьютерные команды
to meet the demands — удовлетворять потребности
record-keeping — регистрация, ведение записей
grading — оценивание, классификация

Text APPLICATION OF PERSONAL COMPUTERS

Personal computers have a lot of applications, however, there are some major categories of applications: home and hobby, word processing, professional, educational, small business and engineering and scientific.

Home and hobby. Personal computers enjoy great popularity among experimenters and hobbyists. They are an exciting hobby. All hobbyists need not be engineers or programmers. There are many games that use the full capabilities of a computer to provide many hours of exciting leisure-time adventure.

The list of other home and hobby applications of PCs is almost endless, including: checking account management, budgeting, personal finance, planning, investment analyses, telephone answering and dialing, home security, home environment and climate control, appliance control, calendar management, maintenance of address and mailing lists, and whatnot.

Word processing. At home or at work, applications software, called a word processing program, enables you to correct or modify any document in any manner you wish before printing it. Using the CRT monitor as a display screen, you are able to view what you have typed to correct mistakes in spelling or grammar, add or delete sentences, move paragraphs around, and replace words. The letter or document can be stored on a diskette for future use.

Professional. The category of professional includes persons making extensive use of word processing, whose occupations are particularly suited to the desktop use of PCs. Examples of other occupations are accountants, financial advisors, stock brokers, tax consultants, lawyers, architects, engineers, educators, and all levels of managers. Applications programs that are popular with persons in these occupations

include accounting, income tax preparation, statistical analysis, graphics, stock market forecasting, and computer modeling. The electronic worksheet is, by far, the computer modeling program most widely used by professionals. It can be used for scheduling, planning, and the examination of "what if" situations.

Educational. Personal computers are having and will continue to have a profound influence upon the classroom, affecting both the learner and the teacher. Microcomputers are making their way into classrooms to an ever-increasing extent, giving impetus to the design of programmed learning materials that can meet the demands of student and teacher.

Two important types of uses for personal computers in education are computer-managed instruction (CMI) and computer-assisted instruction (CAI). CMI software is used to assist the instructor in the management of all classroom-related activities, such as record-keeping, work assignments, testing, and grading. Applications of CAI include mathematics, reading, typing, computer literacy, programming languages, and simulations of real-world situations.

5. Ответьте на вопросы, используя информацию текста.

1. What are the main spheres of PC application? 2. Do you enjoy computer games? 3. Is it necessary for a person to be an analyst or a programmer to play computer games? 4. What other home and hobby applications, except computer games, can you name? 5. What is "a word processing program"? 6. What possibilities can it give you? 7. Can you correct mistakes while typing any material and how? 8. What other changes in the typed text can you make using a display? 9. Which professions are in great need of computers? 10. How can computers be used in education?

6. Найдите в тексте английские эквиваленты следующих слов и словосочетаний.

Много областей применения; тем не менее; обработка текстов; пользоваться популярностью; любители; способности компьютера; бесконечный перечень; анализ инвестиций; набор номера телефона; автоответчик; ведение календаря; хранение адресов и почты; и так далее; прикладные программы; исправлять ошибки в написании; стирать предложения; переставлять абзацы; бухгалтер; биржевые брокеры; консультант по налогам; юристы; работники образования; управленцы; бухгалтерский учет; подоходный налог; компьютерное моделирование; электронные таблицы; составление расписания; оказывать огромное влияние; прокладывать путь; дать толчок; удовлетворять потребности; учебная деятельность; компьютерная грамотность; моделирование реальных жизненных ситуаций.

7. Найдите в текстах 1 и 2 слова:

a) близкие по значению к следующим словам:

Verbs: to print; to produce; to convert; to keep; to found; to erase; to name; to change; to use; to start; to switch on; to supply; to give possibility; to involve.

Nouns: rate; analyst; possibilities; use; plays; control; post; mode; profession; consultant; teacher; director; bookkeeper; fight; producer; attack; amateur; device; crystal; error; storage; primary (memory); monitor; characteristic; aim.

Adjectives: flexible; thrilling; main; little; general;

b) противоположные по значению следующим:

Verbs: to finish; to switch on; to take; to delete.

Nouns: online; input; work.

Adjectives: cheep; weak; common; general; large; soft; high; easy.

8. Расшифруйте следующие аббревиатуры и переведите их.

PC; PU; CU; ALU; CPU; MPU; IBM; DOS; CRT; ROM; RAM; IC; SSI; MSI; LSI; VLSI; MP; CD; I/O; IOP; CMI; CAL

9. Переведите безличные предложения. Обратите внимание на их специфику.

1. It is well-known that personal computers enjoy great popularity among experimenters and hobbyists. 2. It took years to produce a high-speed computer performing a lot of functions. 3. When making up the summary of the text, one should put down the exact title of the article, the author's name, and the date of the edition. 4. It is difficult to imagine modern life without a computer. 5. It is quite impossible to listen to your English pronunciation: you make bad mistakes while reading. 6. Concerning these substances one must say that they vary in their composition. 7. When working with these substances, one should be very careful. 8. It was once a universal practice to manufacture each of the components separately and then assemble the complete device by wiring (монтаж) the components together with metallic conductors. 9. It was no good: the more components and interactions, the less reliable the system. 10. It should first be made clear what the term "microelectronics" means.

10. Прочитайте текст и составьте письменно реферат на английском языке.

A MODEM

The piece of equipment that allows a computer to communicate with other computers over telephone lines is called a modem. The modem allows the individual to access information from all over the world and uses that information in everyday life. Connecting with banks, Automatic Teller Machines, cash registers to read credit cards, access travel agents, buy products, e-mail, access databases, and teleconferencing, the modems provide easy access to many services. Files can be transferred easily, by uploading to another machine, or downloading to your own machine within a matter of minutes. The computer modem can be used as a telephone answering system, and documents can be faxed from one computer to another assuring fast and easy access to important documents.

A modem takes computer information and changes it into a signal that can be sent over telephone lines. The modem is a bridge between digital and analog signals. The computer is of the digital type, and the telephone uses analog technology. The modem converts the Os and Is of the computer (off- on switches) into an analog signals modulating the frequency of the electronic wave or signal. The modem does just the opposite and demodulate the signal back into digital code. The modem gets its name from MOdulate and the DEModulate. Most people believe that you need a separate phone line for a modem, but that is not true.

Your modem and telephone can share one line, the problem arises when someone else needs to use the telephone while the modem is in use. Also disable call waiting, it could disrupt your modem connection while the modem is in use.

There are three kinds of modems — internal, external, and fax. All modems do the same thing, they allow computers to communicate through telephone lines. This lets computers exchange information everywhere. Internal modem is a circuit board that plugs into one of the expansion slots of the computer. Internal modems usually are cheaper than external modems, but when problems occur, fixing and troubleshooting the modem can sometimes prove to be quite difficult. External modem attaches to the back of the computer by way of a cable that plugs into the modem port. It is usually less expensive and very portable. It can be used with other computers very easily by unplugging it and plugging it into another computer. Fax modem can be hooked up to your telephone and used to send information to your computer. Your computer can also send information to a fax machine. Most computer modems are modems with faxing capabilities.

11. Выполните письменно перевод следующего текста по вариантам.
bootstrapping — начальная загрузка
lever-like — рычажковый

MICROCOMPUTER SYSTEM ORGANIZATION

1. The organization of a microcomputer system is the same as that of a larger computer system. The microprocessor unit (MPU), usually concentrated in a single chip, consists of the control unit and the arithmetic logic unit. Internal memory is made up of random access memory (RAM) and read-only memory (ROM). Because RAM is only temporary storage, all microcomputers require some instructions to get started after they are turned on, and these are contained in ROM. A microcomputer includes both an MPU and internal memory.

The portion of the system software that is in ROM brings into RAM the additional instructions required to operate the microcomputer. Typically these instructions are stored on a magnetic disk; hence, they are called a disk operating system, or DOS. This start-up process is called bootstrapping. ROM also contains other programs that help to make personal computers easy to use, such as a programming language. Computer games are also stored in ROM cartridges.

In addition to the MPU, RAM, ROM, and associated control circuits, other components, called peripheral devices, are needed to make a complete microcomputer system. The principal peripheral units are: input devices, output devices, mass storage units, and communication components. Like a DOS, the

programs that control the flow of data between a microcomputer and its peripheral devices are a part of systems software.

The most common input device used with personal computers is the keyboard. Most personal computer keyboards have extra keys that perform special functions and that can be used to control the movement of a cursor on a screen. A lever-like device, called a joystick, is also used as an input device, commonly for playing video games.

2. The CRT (cathode-ray tube) screen used with personal computers is called a monitor. Keyboards and monitors may be part of a single unit that also contains the microcomputer and the disk drives, or they may be separate units. Besides the monitor, the most common input units are dot-matrix and letter-quality printers. Dot-matrix printers are suitable for most microcomputer applications. Letter-quality printers are usually used for high-quality office correspondence. Both types of printers are considered to be low-speed character printers.

Mass storage units are available over a range of capacities and access times. Floppy disks, or diskettes, are the most common mass storage media. They store patterns of bits on magnetically coated, flexible plastic platters. A floppy disk platter is sealed permanently in a paper jacket with a small window for reading and writing. Hard disk storage systems are also available. They may be fixed or removable. Some mass storage units contain both floppy and hard disk devices.

Low-cost modulator-demodulator devices, called modems that allow microcomputer systems to communicate over telephone lines have become increasingly popular. Modems permit networks of personal computer owners to exchange information or to access large data banks. These data banks may be dedicated to special applications, such as law or medicine, or they may provide a variety of consumer services.

COMPUTER PROGRAMMING

1. Прочитайте текст и объясните, как вы понимаете термин «компьютерное программирование».

program logic — логическая последовательность выполнения программы
flowchart — блок-схема; составлять блок-схему
flowcharting — построение блок-схемы
pictorial representation — наглядное представление
predefined symbols — заранее заданные символы
specifics — специальные черты, характерные особенности
emplate — шаблон, маска, образец, эталон
pseudo code — псевдокод, псевдопрограмма
burden — нагрузка
programming rules — правила программирования
consume — потреблять, расходовать
emphasize — выделять, подчеркивать
top-down approach — принцип нисходящей разработки
looping logic — логическая схема выполнения (операций) в цикле

Text COMPUTER PROGRAMMING

Programming is the process of preparing a set of coded instructions which enables the computer to solve specific problems or to perform specific functions. The essence of computer programming is the encoding of the program for the computer by means of algorithms. The thing is that any problem is expressed in mathematical terms, it contains formulae, equations, and calculations. But the computer cannot manipulate formulae, equations, and calculations. Any problem must be specially processed for the computer to understand it, that is - coded or programmed.

The phase in which the system's computer programs are written is called the development phase. The programs are lists of instructions that will be followed by the control unit of the central processing unit (CPU). The instructions of the program must be complete and in the appropriate sequence, or else the wrong answers will result. To guard against these errors in logic and to document the program's logical approach, logic plans should be developed.

There are two common techniques for planning the logic of a program. The first technique is flowcharting. A flowchart is a plan in the form of a graphic or pictorial representation that uses predefined symbols to illustrate the program logic. It is, therefore, a "picture" of the logical steps to be performed by the computer. Each of the predefined symbols shapes stands for a general operation. The symbol shape communicates the nature of the general operation, and the specifics are written within the symbol. A plastic or metal guide called a template is used to make drawing the symbols easier.

The second technique for planning program logic is called pseudo code. Pseudo code is an imitation of actual program instructions. It allows a program-like structure without the burden of programming rules to follow. Pseudo code is less time-consuming for the professional programmer than is flowcharting. It also emphasizes a top-down approach to program structure.

Pseudo code has three basic structures: sequence, decision, and looping logic. With these three structures, any required logic can be expressed.

2. Ответьте на вопросы, используя информацию текста.

1. What is programming? 2. What is the essence of programming? 3. What should be done with the problem before processing by the computer? 4. What is a program? 5. What are instructions? 6. What are the main techniques for planning the program logic? 7. What is a flowchart? 8. What is a template and what is it used for? 9. What do you understand by "pseudo code"? 10. What are the basic structures of pseudo code?

3. Найдите в тексте английские эквиваленты следующих слов и словосочетаний.

Совокупность закодированных команд; суть компьютерного программирования; кодирование посредством алгоритма; формулы, уравнения, вычисления; обработать особым образом; перечень команд; необходимая последовательность; защищать от ошибок; составлять план логической последовательности; общепринятая методика; логическая последовательность выполнения программы; построение блок- схемы; наглядное представление; заранее заданные символы; шаблон; псевдо программа; без издержек; выделять

принцип нисходящей обработки; расходовать меньше времени; логическая схема выполнения операций в цикле; необходимая последовательность операций.

4. Подберите из предложенных ниже русских словосочетаний значения следующих терминов на английском языке.

Program: access program; application program; archived program; binary program; common program; compatible/incompatible program; control/management program; database program; debugging program; educational/teaching/training program; free program; general-purpose program; high-performance program; offline program; online program; operating (-system) program; processing program; protected-mode program; remote program; running program; self-loading program; simulation program; support program; utility program; virus-detection program; watch-dog program.

Программа в двоичном коде; прикладная программа; (несовместимая программа; бесплатная программа; программа отладки; сторожевая программа; дистанционная программа; программа моделирования; сервисная программа; вспомогательная программа; программа для доступа (к данным); заархивированная программа; программа, работающая с базой данных; обучающая программа; программа, выполняемая с большой скоростью; универсальная программа; программа, выполняемая в защищённом режиме; программа обработки данных; программа операционной системы (системная программа); выполняемая программа; (не)сетевая программа; самозагружающаяся программа; часто используемая (распространённая) программа; программа управления; программа обнаружения вирусов.

5. Прочитайте текст и объясните, что представляют собой языки программирования.

programming language — язык программирования
coded form — кодированный вид, кодированное представление
to convey — передавать, сообщать
to improve — улучшать, совершенствовать
machine oriented language — машинно-ориентированный язык
business-oriented language — язык для (программирования) экономических задач
problem-oriented language — проблемно-ориентированный язык
string of binary — строка двоичного представления
data handling — обработка данных, работа с данными
field-name length — длина имени поля
incorporate features — включать свойства (особенности)
versatile — многофункциональный, разносторонний, универсальный
generous — большой, значительный (о количестве)
mathematical relationship — математическая связь (соотношение)

Text PROGRAMMING LANGUAGES

Let's assume that we have studied the problem, designed a logical plan (our flowchart or pseudo code), and are now ready to write the program instructions. The process of writing program instructions is called coding. The instructions will be written on a form called a coding form. The instructions we write will be recorded in a machine-readable form using a keypunch, key- to-tape, or key-to-disk, or entered directly into computer memory through a terminal keyboard.

The computer cannot understand instructions written in just any old way. The instructions must be written according to a set of rules. These rules are the foundation of a programming language. A programming language must convey the logical steps of the program plan in such a way that the control unit of the CPU can interpret and follow the instructions. Programming languages have improved throughout the years, just as computer hardware has improved. They have progressed from machine-oriented languages that use strings of binary Is and Os to problem-oriented languages that use common mathematical and/or English terms.

There are over 200 problem-oriented languages. The most common of them are COBOL, FORTRAN, PL/I, RPG, BASIC, PASCAL.

COBOL

COBOL was the most widely used business-oriented programming language. Its name is an acronym for Common Business-Oriented Language. COBOL was designed to solve problems that are oriented toward data handling and input-output operations. Of course, COBOL can perform arithmetic operations as well, but its greatest flexibility is in data handling. COBOL also was designed as a self-documenting language. Self-documenting languages are those that do not require a great deal of explanation in order to be understood by someone reading the program instructions. The self-documenting aspect of COBOL is made possible by its sentence-like structure and the very generous maximum symbolic field-name length of 30 characters. With a field-name length of up to 30 characters, the name can clearly identify the field and its purpose.

FORTRAN IV

The FORTRAN IV language is oriented toward solving problems of a mathematical nature. The name FORTRAN comes from the combination of the words formula translation. The version of FORTRAN IV has been designed as algebra-based programming language. Any formula or those mathematical relationships that can be expressed algebraically can easily be expressed as a FORTRAN instruction. FORTRAN is the most commonly used language for scientific applications.

PL/I

PL/I stands for programming language I. It was designed as a general- purpose language incorporating features similar to COBOL for data handling instructions and features similar to FORTRAN for mathematical instructions. PL/I is much more than a combination of the good features of both COBOL and FORTRAN, as it has many capabilities that are unique. Yet, although PL/I is one of the most versatile and the most powerful of the programming languages, it is not the most commonly used.

COBOL and FORTRAN have been available for a longer period of time than PL/I, and many more users work with those languages.

6. Ответьте на вопросы, используя информацию текста.

1. What is the process of writing instructions called? 2. What is a code? 3. How must instructions be written? 4. What is the foundation of any programming language? 5. How was the development of programming languages progressing throughout the years? 6. What are the most common problem-oriented languages? 7. What is COBOL? 8. What functions was COBOL designed for? 9. What does FORTRAN serve for? 10. What capabilities has PL/I?

7. Найдите в тексте английские эквиваленты следующих слов и словосочетаний.

Языки программирования; блок-схема; кодированная форма; вид, удобочитаемый для компьютера; в соответствии с набором правил; представить логические шаги программы; таким образом; совершенствовать языки программирования; машинно-ориентированные языки; проблемно-ориентированные языки; обычный термин; язык для программирования экономических задач; обработка информации; операции по вводу-выводу данных; гибкость; идентифицировать поле и его цели; решение проблем математического характера; сферы научного применения; универсальный язык; включать свойства; уникальные возможности; многофункциональный и самый мощный из языков программирования.

8. Найдите в текстах 1 и 2 слова, близкие по значению к следующим.

Nouns: command; line; characteristic; form; evolution; enumeration;
mistake; method; character; manual (instruction); consumption; storage; basics; abbreviation; interpretation; correlation; possibility.

Verbs: include; inform; process; protect; apply; permit; stress; suppose; learn; make up; write; key; explain; define; perfect; advance; decide; execute; demand.

Adjectives: full; incorrect; usual; necessary; accessible; required; considerable; floppy; possible.

9. Выполните перевод следующих текстов письменно по вариантам.

1. RPG II programming language

RPG II is a business-oriented language. The name stands for report program generator. RPG is considerably different from other programming languages. RPG is, in effect, a large prewritten program. The programmer simply indicates the options within the master program that are to be used and, through a set of indicators, when they are to be used.

RPG was originally referred to as a "quick-and-dirty" programming language. That is, it is quick for the programmer to write and relatively inefficient in its use of main storage and processing speed. The latest version of RPG, called RPG II, greatly improved the language and gave it additional capabilities. RPG has an advantage over COBOL in that it requires less training for a programmer to become proficient in it. For this reason, RPG is commonly used on many smaller computers and in small business.

2. BASIC

BASIC is the acronym for beginner's all-purpose symbolic instruction code. It was developed in Dartmouth College as an easy-to-learn programming language for students and inexperienced programmers. Its key design goal is simplicity. BASIC has become a very popular language in systems where many users share the use of a computer through terminals and it has become a universal language for personal computers.

The language BASIC is mathematically oriented, that is, its typical use is to solve problems of a mathematical nature. Because BASIC programs are usually executed from a terminal or microcomputer where input is entered through a keyboard and printed output is relatively slow, problems of a business nature requiring large volumes of input-output data are usually not practical.

3.   PASCAL

PASCAL was invented in 1970 by Professor Niklaus Wirth of Zurich, Switzerland. It was named after the mathematician Blaise Pascal, who in-vented one of the earliest practical calculators. PASCAL is a mathematically oriented programming language and, as such, is most commonly used in mathematics, engineering, and computer science departments of colleges and universities. This language is somewhat unusual in that it was designed to be a structured language. This means that the program must be written in logical modules which are in turn called by a main controlling module. Much of PASCAL'S popularity is due to work done at the University of California at San Diego, where PASCAL has been implemented on several different computers including microcomputers.

10. Прочитайте тексты (по вариантам) и составьте рефераты на английском языке.

1.   The conversion of symbolic languages

As we see, most of the symbolic languages are oriented toward the particular application areas of business or science (math). The one problem with all symbolic languages is that none of them can be understood by a computer. The symbolic languages may say AP, ADD, or use a "plus" sign to indicate an addition step, but the only thing that means addition to a computer is its binary machine code. We have symbolic programs that are relatively easy for humans to understand, but they cannot be understood by computers. On the other hand, we have machine code that is understood by the computer, but it is difficult for humans to use. The solution is a translator that translates the symbolic program into machine code. The translator allows the human to work with relatively easy-to-understand symbolic languages and it allows the computer to follow instructions in machine code. The translation of symbolic instructions to machine code is accomplished through the use of a program called a language processor. There are three types of language processors. They are called assemblers, compilers, and interpreters. Each translates symbolic instructions to machine code, but each does it differently.

(The translator is a program itself. It is part of a group of programs, called the operating systems that help us to use the computer.)

2.   Running the computer program

The operating system is a collection of programs provided by the computer's manufacturer that allows us to schedule jobs for the computer, to translate source

programs into object programs, to sort data stored on secondary storage devices, and to copy data from any input device to any output device. These programs are called control programs, language programs, and utility programs.

The control program (often called the supervisor, monitor, or executive) is a main-storage-resident program. Its functions are to schedule jobs, schedule input and output for our programs, and to monitor the execution of our programs.

The language processors are programs that translate source programs into object programs. There are three types of language processors: assemblers, compilers, and interpreters. Each language has its own language processor.

The service programs are programs that are commonly used in all data processing centers. They have functions that are required by everyone using a computer. Examples of service programs include linkage editors to prepare object programs for execution, a librarian to catalog programs into a library area on magnetic disk, utility programs to transfer data from device to device, and sort-merge programs for sorting data on magnetic tape or disk.

3. Testing the computer program

There are two kinds of errors or bugs with which programmers must deal. The first type is the coding error. Such errors are syntax errors that prevent the language processor from successfully translating the source program to object program code. The language processor identifies the nature and the location of the error on the source program listing, so these errors are relatively easy to find and correct. The second type of bug is the logic error. The computer program can be successfully translated, but the program does not produce the desired results. These errors are generally much more difficult to find and to correct than are coding errors. Logic errors can be avoided through careful planning of the program logic, but it is the programmer's responsibility to test thoroughly all of the program's functions, in order to verify that the program performs according to specifications.

There are many tools provided to the programmer to help in debugging the program logic. These tools are called debug packages or tracing routines. They assist the programmer in following the logic by printing out calculation results and field values used in making logic decisions in the program. In a few cases it may be necessary to use a memory dump — a printout of the instructions and date held in the computer's memory — in order to find the cause of logic errors.

MODERN PORTABLE COMPUTERS
1. Read and translate the text.
Text 1. A NOTEBOOK OR A MODERN LAPTOP

A notebook is considered to be a personal computer designed for mobile use that is small and light enough for a person to rest on their lap. A laptop integrates most of the typical components of a desktop computer, including a display, a keyboard, a pointing device (a touchpad, also known as a track pad, and/or a pointing stick), and speakers into a single unit. A laptop is powered by mains electricity via an AC adapter, and can be used away from an outlet using a rechargeable battery. A laptop battery in new condition typically stores enough energy to run the laptop for three to five hours, depending on the computer usage, configuration, and power management

settings. The laptop being plugged into the mains, the battery charges, whether or not the computer is running.

Modern laptops weigh 1.4 to 5.4 kg. Most laptops are designed in the flip form factor to protect the screen and the keyboard when closed. Modem tablet laptops have a complex joint between the keyboard housing and the display permitting the display panel to swivel and then lie flat on the keyboard housing.

Portable computers, originally monochrome CRT-based and developing into the modern laptop, were originally used mostly for specialized field applications such as the military, accountants, and sales representatives. Portable computers becoming smaller, lighter, and cheaper, and screens becoming larger and of better quality, laptops found very wide application for all purposes.

History of laptops

As the personal computer became feasible in the early 1970s, the idea of a portable personal computer appeared. A "personal, portable information manipulator" is known to be imagined and described by Alan Kay in 1972. The IBM 5100, the first commercially available portable computer, appeared in September 1975, and was based on the SCAMP project (Special Computer APL Machine Portable) prototype.

8-bit CPU machines became widely accepted, the number of portables having increased rapidly. We know the first laptop to use the flip form factor was demonstrated in the early 1980s. It was the Epson HX-20 which had a LCD screen, a rechargeable battery, and a calculator-size printer in a 1.6 kg chassis.

From 1983 onward, several new input techniques were developed and involved in laptops, including the touchpad (in 1983), the pointing stick (in 1992), and handwriting recognition (in 1987). Some CPUs, such as the 1990 Intel i386SL, were designed to use minimum power to increase battery life of portable computers.

Classification

The general term "laptop" can be used to refer to a number of classes of small portable computers:

Full-size laptop — a laptop which measures at least 11 inches across, which is the minimum specialized field applications; LCD screen; width to allow a full-size keyboard. The first laptops were the size of a standard U.S. "A-size" notebook sheet of paper (81/2 x 11 inches), but later "A4-size" laptops were introduced, which were the width of a standard ISO 216 A4 sheet of paper (297 mm), and added a vertical column of keys to the right and wider screens.

Netbook — a smaller, lighter, more portable laptop. It is also usually cheaper than a full-size laptop, but has fewer features and less computing power. Smaller keyboards can be more difficult to operate.

Ultra-thin laptop — a newer class of laptops which are very thin and light.

Tablet PC — these have touch screens. There are "convertible tablets" with a full keyboard where the screen rotates to be used atop the keyboard, and "slate" form-factor machines which are usually touch-screen only.

Rugged laptops — engineered to operate in tough conditions such as mechanical shocks, extreme temperatures, wet and dusty environments.

2. Check your comprehension.

1. What is a notebook? 2.Why is a notebook often called a laptop? 3. What components does a laptop consist of? 4. How is a laptop powered and how long can it work? 5. What were laptops originally used for? 6. Who first described the idea of a portable computer? 7. When did the first portable computers appear? 8. What new input techniques have been developed in laptops since the 1980s? 9. What are the main classes of laptops? 10. What distinguishes different classes of laptops?

3. Translate the technical terms used in text 1.

Desktop computer; a keyboard; a keyboard housing; a touchpad = track pad; a single unit; alternating current adapter; outlet; rechargeable battery; power management settings; modern tablet laptops; a complete joint; cathode-ray tube based computers; specialized field applications; accountants and sales representatives; better quality; a calculator-size printer; several input techniques; handwriting recognition; central processing unit; full-size laptops; tablet personal computers; convertible tablets; touch screen; mechanical shocks; wet and dusty environments.

To run the laptop; to be plugged in the main; to design in a flip form; to protect the screen; to permit the display to swivel; to increase rapidly; to in-crease the life of a computer; to develop and involve in laptops; to operate in tough conditions; to add a vertical column of keys; to include the pointing stick; to depend on computer usage; to refer to a number of classes.

4. Read text 2 and speak about types of portable computers.

Text 2. CLASSES OF LAPTOPS
Desktop replacement computer

A desktop-replacement computer is a laptop that provides most of the capabilities of a desktop computer, with a similar level of performance. Desk-top replacements seem to be larger and heavier than standard laptops. They contain more powerful components and have a 15" or larger display. They are bulkier and not as portable as other laptops, and their operation time on batteries is typically shorter; they are intended to be used as compact and transportable alternatives to a desktop computer.

Some laptops in this class use a limited range of desktop components to provide better performance for the same price at the expense of battery life, a few of those models having no battery. These, and sometimes desktop- replacement computers in general, are sometimes called desk notes, a portmanteau of "desktop" and "notebook".

In the early 2000s desktops were more powerful, easier to upgrade, and much cheaper than laptops, but in later years laptops have become much cheaper and more powerful. Most peripherals are available in laptop-compatible USB versions which minimize the need for internal add-on cards.

Subnotebook

A subnotebook or ultraportable is a laptop designed and marketed with an emphasis on portability (small size, low weight, and often longer battery life) that retains performance close to that of a standard notebook. Subnotebooks are usually smaller and lighter than standard laptops, weighing between 0.8 and 2 kg; the battery

life can exceed 10 hours when a large battery or an additional battery pack is installed.

To achieve the size and weight reductions, ultraportables use 13" and smaller screens (down to 6.4"), have relatively few ports, employ expensive components designed for minimal size and best power efficiency, and utilize advanced materials and construction methods. Most subnotebooks achieve a further portability improvement by omitting an optical / removable media drive. In this case they may be paired with a docking station that contains the drive and optionally more ports or an additional battery.

The term "subnotebook" is reserved to laptops that run general-purpose desktop operating systems.

<center>Netbooks</center>

Netbooks (sometimes also called mininotebooks or ultraportables) are a branch of subnotebooks, a rapidly evolving category of small, lightweight, economical, energy-efficient, and especially suited for wireless communication and Internet access. The origins of the netbook can be traced to the Network Computer (NC) concept of the mid-1990s. In March 1997 Apple Computer introduced the e-mail 300 as a subcompact laptop that was a cross between the Apple Newton PDA and a conventional laptop computer.

Netbooks are intended to rely heavily on the Internet for remote access to web-based applications and are targeted increasingly at cloud computing users who rely on servers and require a less powerful client computer.

Netbooks typically have less powerful hardware than larger laptop com-puters. Some netbooks do not even have a conventional hard drive. Such netbooks use solid-state storage devices instead, as they require less power, are faster, lighter, and generally more shock-resistant, but with much less storage capacity.

Netbooks in education. Netbooks offer several distinct advantages in educational settings. First, their compact size and weight make for an easy fit in student work areas. Similarly, the small size makes netbooks easier to transport than heavier, larger-sized traditional laptops. Despite the small size, netbooks are fully capable of accomplishing most school-related tasks, including word processing, Power Point presentations, access to the Internet, multimedia playback, and photo management.

Netbooks have the potential to change the way students and teachers interact, and have many practical applications in the classroom setting. One major implication of netbooks in schools is cloud computing. Cloud computing eliminates many of the technology related headaches that we have become accustomed to, including incompatibility between home computers and school computers, "data loss" due to computer crash, and printer failure. Virtually all netbooks have wireless Internet connections, allowing complete access to free online applications and servers.

It is well-known that students with laptops do more and higher quality writing, have access to more information, which improves data analysis skills, and that student-centered learning is more easily accomplished. Student- centered learning, a growing trend in education recently, increases student motivation, cultivates critical thinking and problem solving, and fosters positive student collaboration.

5. Check your comprehension.

1. What is a desktop replacement computer? 2. Compare a desktop re-placement computer with a standard laptop. 3. How do people sometimes call desktop replacement computers? 4. Describe a subnotebook comparing it with a standard laptop. 5. How do ultraportables achieve improvements in portability? 6. What kind of laptops are netbooks? 7. What are netbooks aimed at? 8. What are the main advantages and disadvantages of netbooks in comparison with larger laptop computers? 9. Where do netbooks find practical application? 10. What do students acquire using netbooks?

6. Find in texts 1 and 2 words close in their meaning to the words given below.

Example: To use — to apply, to employ, to utilize; an aim — a purpose, a target, etc.

To use, to let, to unite, to involve, to energize, to keep, to operate, to insert, to defend, to compute, to supply, to reduce, to perfect, to let, to suggest, to communicate, to finish.

An aim, a screen, a touchpad, a device, a notebook, memory, energy, application, a branch, data, method, an idea, characteristics, abilities, variant, education, opportunity, error.

Movable, little, common, usual, up-to-date, compact, broad, several, mighty, massive, brief, distant, usual, light.

Mainly, usually, quickly, particularly, not long ago.

7. Read text 3 and speak about the types of tablet computers.

Text 3. TABLET PERSONAL COMPUTERS

A tablet PC is a laptop PC equipped with a stylus or a touchscreen. Tablet PCs may be used where notebooks are impractical or unwieldy, or do not provide the needed functionality.

The term tablet PC was made popular in a product announced in 2001 by Microsoft. Tablet PCs are personal computers where the owner is free to install any compatible application or operating system. Other tablet computer devices, such as eBook readers or PDAs, do not provide this option and are generally considered another category.

Tablet PCs typically incorporate small (21—36 cm) LCD screens and are popular in health care, education, hospitality, and field work. Applications for field work are sure to often require a tablet PC that has rugged specifications ensuring long life by resisting heat, humidity, and drop / vibration damage.

Booklets. Booklet PCs are dual screen tablet computers that fold like a book. Typical booklet PCs are equipped with multi-touch screens and pen writing recognition capabilities. They are designed to be used as digital day planners, Internet surfing devices, project planners, music players, and displays for video, live TV, and e-reading.

Slates. Slate computers, which resemble writing slates, are tablet PCs without a dedicated keyboard. For text input, users rely on handwriting recognition via an active digitizer, touching an on-screen keyboard using fingertips or a stylus, or using an external keyboard that can usually be attached via a wireless or USB connection.

Convertibles. Convertible notebooks have a base body with an attached keyboard. They more closely resemble modern laptops, and are usually heavier and larger than slates. Typically, the base of a convertible attaches to the display at a single joint called a swivel hinge or rotating hinge. The joint allows the screen to rotate through 180 and fold down on top of the keyboard to provide a flat writing surface. Convertibles are by far the most popular form factor of tablet PCs, because they still offer the keyboard and pointing device (usually a track pad) of older notebooks, for users who do not use the touch-screen display as the primary method of input.

Hybrids. Hybrids share the features of the slate and convertible by using a detachable keyboard that operates in a similar fashion to a convertible when attached. Hybrids are not to be confused with slate models with detachable keyboards; detachable keyboards for pure slate models do not rotate to allow the tablet to rest on it like a convertible.

Tablets versus traditional notebooks. The advantages and disadvantages of tablet PCs are highly subjective measures. What appeals to one user may be exactly what disappoints another.

Advantages:

- Usage in environments not conducive to a keyboard and mouse such as lying in bed, standing, or handling with a single hand.

- Lighter weight, lower power models can function similarly to dedicated reading devices.

- Touch environment makes navigation easier than conventional use of keyboard and mouse or touch pad in certain contexts such as image manipulation, or mouse-oriented games.

- Digital painting and image editing is enhanced and more realistic than painting or sketching with a mouse.

- The ability for easier or faster entering of diagrams, mathematical notations, and symbols.

- Allows, with the proper software, universal input, independent from different keyboard localizations.

- Some users find it more natural and fun to use a stylus to click on objects rather than a mouse or touchpad, which are not directly connected to the pointer on screen.

8. Check your comprehension.
1. What is a tablet PC? 2. What are characteristic features of a tablet PC? 3. What types of tablets have you got acquainted with? 4. What is the most popular form of tablet PC? 5. What are booklets equipped with? 6. Where are they used? 7. How do slates manage to operate without keyboards? 8. What features of other tablets do hybrids include? 9. What are the main advantages of tablets over traditional notebooks? 10. Have tablets any disadvantages in comparison with notebooks, to your mind? Name some of them, if any.

9. Translate the phrases paying attention to verbals and the ways of their translation.

The needed functionality; a product announced in 2001; tablets folding like a book; booklets equipped with multi-touched screen; pen writing recognition capabilities; computers resembling writing slates; a dedicated key-board; touching an on-screen keyboard; using fingertips; to ensure long life by resisting heat and vibration damage; an attached keyboard; a joint called a rotating hinge; the screen to rotate through 180; the screen to provide a flat writing surface; hybrids share the features of the slate and convertible by using a detachable keyboard; a keyboard operates in a similar fashion to a convertible when attached; hybrids are not to be confused with slate models; detach-able keyboards do not rotate to allow the tablet to rest on it; dedicated reading devices; mouse-oriented games; digital painting and image editing; the ability for faster entering of diagrams; users find it fun to use a stylus to click on objects; touchpad not directly connected to the pointer on screen.

10. Read text 4 and speak about the distinguishing features of laptops and desktop PCs, their advantages and disadvantages.

Text 4. PORTABLE COMPUTERS VERSUS DESKTOPS

I. The basic components of laptops are similar in function to their desktop counterparts, but are miniaturized, adapted to mobile use, and designed for low power consumption. Because of the additional requirements, laptop components are usually of inferior performance compared to similarly priced desktop parts. Furthermore, the design bounds on power, size, and cooling of laptops limit the maximum performance of laptop parts compared to that of desktop components.

The following list summarizes the differences and distinguishing features of laptop components in comparison to desktop personal computer parts: Motherboard — Laptop motherboards are highly model specific, and do not conform to a desktop form factor. Unlike a desktop board that usually has several slots for expansion cards (3 to 7 are common), a board for a small, highly integrated laptop may have no expansion slots at all, with all the functionality implemented on the motherboard itself; the only expansion possible in this case is via an external port such as USB. Other boards may have one or more standard, such as Express Card, or proprietary expansion slots. Several other functions (storage controllers, networking, sound card and external ports) are implemented on the motherboard.

Central processing unit (CPU) - Laptop CPUs have advanced power-saving features and produce less heat than desktop processors, but are not as powerful. There is a wide range of CPUs designed for laptops available. Some laptops have removable CPUs, although support by the motherboard may be restricted to the specific models. In other laptops the CPU is soldered on the motherboard and is non-replaceable.

Memory (RAM) - SO-DIMM memory modules that are usually found in laptops are about half the size of desktop DIMMs. They may be accessible from the bottom of the laptop for ease of upgrading, or placed in locations not intended for user replacement such as between the keyboard and the motherboard.

Expansion cards - A PC Card or Express Card bay for expansion cards is often present on laptops to allow adding and removing functionality, even when the laptop is powered on. Some subsystems (such as Ethernet, Wi-Fi, or a cellular modem) can be implemented as replaceable internal expansion cards, usually accessible under an access cover on the bottom of the laptop.

Power supply - Laptops are typically powered by an internal recharge-able battery that is charged using an external power supply. The power supply can charge the battery and power the laptop simultaneously. The battery being fully charged, the laptop continues to run on AC power. The charger adds about 400 grams to the overall "transport weight" of the notebook.

II. Advantages of portable computers

Portability is usually the first feature mentioned in any comparison of laptops versus desktop PCs. Portability means that a laptop can be used in many places — not only at home and at the office, but also during commuting and flights, in coffee shops, in lecture halls and libraries, at clients' location or at a meeting room, etc. The portability feature offers several distinct advantages:

Productivity - Using a laptop in places where a desktop PC can't be used, and at times that would otherwise be wasted.

Immediacy - Carrying a laptop means having instant access to various information, personal and work files. Immediacy allows better collaboration between coworkers or students, as a laptop can be flipped open to present a problem or a solution anytime, anywhere.

Up-to-date information - If a person has more than one desktop PC, a problem of synchronization arises: changes made on one computer are not automatically propagated to the others. There are ways to resolve this problem, including physical transfer of updated files using synchronization software over the Internet. However, using a single laptop at both locations avoids the problem entirely, as the files exist in a single location and are always up-to-date.

Size - Laptops are smaller than desktop PCs. This is beneficial when space is at a premium, for example in small apartments and student dorms. When not in use, a laptop can be closed and put away.

Low power consumption - Laptops are several times more power-efficient than desktops. A typical laptop uses 20-90 W, compared to 100- 800 W for desktops. This could be particularly beneficial for businesses which run hundreds of personal computers and homes.

Battery - A charged laptop can continue to be used in case of a power outage and is not affected by short power interruptions and blackouts. A desktop PC needs a UPS to handle short interruptions, blackouts, and spikes; achieving on-battery time of more than 20-30 minutes for a desktop PC requires a large and expensive UPS.

All-in-one - Designed to be portable, laptops have everything integrated in to the chassis. For desktops (excluding all-in-ones) this is divided into the desktop, keyboard, mouse, display, and optional peripherals such as speakers.

III. Disadvantages of portable computers

Compared to desktop PCs, laptops have disadvantages in the following fields:

Performance. The upper limits of performance of laptops remain much lower than the highest-end desktops (especially "workstation class" machines with two processor sockets), and "bleeding-edge" features usually appear first in desktops and only then, as the underlying technology matures, are adapted to laptops.

Laptops processors can be disadvantaged when dealing with higher-end database, mathematics, engineering, financial software, virtualization, etc. Also, the top-of-the-line mobile graphics processors (GPUs) are significantly behind the top-of-the-line desktop GPUs to a greater degree than the processors, which limits the utility of laptops for high-end 3D gaming and scientific visualization applications.

Upgradeability of laptops is very limited compared to desktops, which are thoroughly standardized. In general, hard drives and memory can be upgraded easily. Optical drives and internal expansion cards may be upgraded if they follow an industry standard, but all other internal components, including the motherboard, CPU, and graphics, are not always intended to be upgradeable. The reasons for limited upgradeability are both technical and economic.

Durability. Due to their portability, laptops are subjected to more wear and physical damage than desktops. Components such as screen hinges, latches, power jacks, and power cords deteriorate gradually due to ordinary use. They say that a laptop is three times more likely to break during the first year of use than a desktop.

Battery life of laptops is limited; the capacity drops with time, necessitating an eventual replacement after a few years. The battery is often easily replaceable, and one may replace it on purpose with a higher-end model to achieve better battery life.

12. Check your comprehension.
1. What unites PCs and desktops? 2. What limits the maximum performance of laptop parts? 3. How is functionality implemented on laptop motherboard? 4. What kind of CPU are PCs provided? 5. Compare PCs and desk-tops memory. 6. How are PCs and desktops supplied with power? 7. What are the main advantages of portable computers over desktops? 8. Speak about batteries used in PCs and desktops and power consumption by them. 9. What disadvantages do portable computers have compared to desktops? 10. How can one achieve better battery life?

13. Analyze verbals in the given phrases and translate them.
Laptop components adapted to mobile use and designed for low power consumption; distinguishing features; a PC card is present on laptops to allow adding and removing functionality; laptops powered by an internal battery charged by using an external power supply; laptops can be used in many places; using a laptop at times that would otherwise be wasted; a student doing his homework; a laptop can be flipped open to present a problem; there are ways to resolve the problem, including physical transfer of updated files; when not in use a laptop can be closed and put away; a charged laptop can continue to be used; designed to be portable; compared to desktop PCs, laptops have some disadvantages; laptops processors can be disadvantaged when dealing with higher-end database; other components, including the motherboard, CPU, and graphics, are not always intended to be upgradeable; a laptop is three times more likely to break than a desktop; the capacity drops with time, necessitating an eventual replacement after a few years; one may replace the battery to achieve better battery life.

14. Find in the texts studied words or groups of words opposite in their meaning to the words given below.

To subtract, to appear, to stand, to prohibit, to find, to open, to improve, to rise, to charge, to downgrade.

Expensive, late, slow, difficult, external, big, light, unlike, compatible, low, far, worse, complex, superior, minimum, soft.

Before, over, ahead, less, many.

MOBILE PHONES

1. Read and translate the text.

Text 1. HISTORY OF MOBILE PHONES

A mobile phone (also called mobile, cellular phone, cell phone, or hand phone) is an electronic device used for full duplex two-way radio telecommunications over a cellular network of base stations known as cell sites. Mobile phones are sure to differ from cordless telephones, which only offer telephone service within limited range through a single base station attached to a fixed landline, for example, within a home or an office.

A mobile phone allows its users to make and receive telephone calls to and from the public telephone network which includes other mobiles and fixed line phones across the world. It does this by connecting to a cellular network owned by a mobile network operator. A key feature of the cellular network is that it enables seamless telephone calls even when the user is moving around wide areas via a process known as handoff or handover.

In addition to being a telephone, modern mobile phones also support many additional services and accessories, such as SMS (or text) messages, e-mail, Internet access, gaming, Bluetooth, infrared, camera, MMS messaging, MP3 player, radio, and GPS. Low-end mobile phones are often referred to as feature phones, high-end mobile phones that offer more advanced computing ability being referred to as smartphones.

Radiophones have a long and varied history. It goes back to Reginald Fessenden's invention and shore-to-ship demonstration of radio telephony through the Second World War with military use of radio telephony links and civil services in the 1950s.

In 1960 the world's first partly automatic car phone system, Mobile System A (MTA) was launched in Sweden. MTA phones were composed of vacuum tubes and relays, and had a weight of 40 kg. In 1962 a more modern version called Mobile System B (MTB) was launched. It was a push-button telephone, which used transistors in order to enhance the telephone's calling capacity and improve its operational reliability. In 1971 the MTD version was launched, opening for several different brands of equipment and gaining commercial success.

Martin Cooper, a Motorola researcher is considered to be the inventor of the first practical mobile phone for hand-held use in a non-vehicle setting. Using a modern, though somewhat heavy portable handset, Cooper made the first call on a hand-held mobile phone in April, 1973.

The first commercially automated cellular network (the 1G — first generation) was launched in Japan in 1979. Within five years the network had been expanded to cover the whole population of Japan and became the first nation-wide 1G network. This was followed by the simultaneous launch of the Nordic Mobile Telephone (NMT) system in Denmark, Finland, Norway, and Sweden. NMT appeared to be the first mobile phone network featuring international roaming. The first network technology on digital 2G (second generation) cellular technology appeared in Finland on the GSM standard. One of the newest 3G technologies to be implemented is mobile telephony communications protocol in the High-Speed Packet Access (HSPA) family. It allows networks based on Universal Mobile Telecommunication System (UMTS) to have higher data transfer speeds and capacity.

2. Check your comprehension.

1. What is a mobile phone? 2. What differs mobile phones from cordless telephones? 3. What is the role of the public telephone network in making calls? 4. What is the main characteristic of the cellular network? 5. What other services, except telephoning, do mobile phones include? 6. Who demonstrated the first hand-held phone? 7. Who invented the first practical mobile phone? 8. What history do radiophones have? 9. Where was the first automated cellular network launched? 10. How were digital cellular technologies developed and perfected?

3. Put the verbs given in brackets in the necessary form.

A CORDLESS TELEPHONE WITH BASE

As it (to know), George Sweigert, an amateur radio operator and inventor from Cleveland, Ohio, (to recognize) as the father of the cordless phone. He (to submit) his "full duplex wireless communication apparatus" and (to award) by the U.S. Patent and Trademark Office a patent for his invention in 1969.

A cordless telephone or portable telephone (to be) a telephone with a wireless handset that (to communicate) via radio waves with a base station connected to a fixed telephone line, usually within a limit ed range of its base station, which (to have) the handset cradle. The base station (to be) on the subscriber premises, and (to attach) to the telephone network the same way a corded telephone (to do). But unlike a corded telephone, a cordless telephone (to need) mains electricity to power the base station. The cordless handset (to power) by a rechargeable battery, which (to charge) when the handset (to sit) in its cradle.

In the 1980s a number of manufacturers (to introduce) cordless phones for the consumer market. Typically they (to use) a base station that (to connect) to a telephone line and a handset with a microphone, speaker, keypad, and telescoping antenna. The handset (to contain) a rechargeable battery, usually NiCd. The base unit (to power) by household current, typically via a wall wart. The base (to include) a charging cradle, which (to be) generally a form of trickle charger, on which the handset (to rest) when not in use.

2. Make up an essay for text 1.

3. Read text 2 and speak about mobile phones features.

Text 2. MOBILE PHONES FEATURES

All mobile phones are known to have a number of features in common, but manufacturers also try to differentiate their own products by implementing additional functions to make them more attractive to consumers.

The common components found on all phones are:

- a rechargeable battery providing the power source for the phone functions;

- an input mechanism and display to allow the user to interact with the phone. The most common input mechanism is a keypad, touch screen being also found in some high-end smart phones;

- basic mobile phones services to allow users to make calls and send text messages;

- All GSM phones use a SIM card to allow an account to be swapped among devices, some CDMA devices also having a similar card called a R-UIM;

- Individual GSM, iDEN, and some satellite phone devices are uniquely identified by an International Mobile Equipment Identity (IMEI) number.

Low-end mobile phones are often referred to as feature phones and offer basic telephony, as well as functions such as playing music and taking photos. Handsets with more advanced computing ability through the use of native software applications became known as smartphones. The first smartphone was the Nokia 9000 Communicator in 1996, which added PDA functionality to the basic mobile phone at the time. Miniaturization and increased processing power of microchips having enabled ever more features to be added to phones, the concept of the smartphone has evolved, and what was a smartphone five years ago, is a standard phone today.

Several phone series have been introduced, such as the RIM BlackBerry focusing on enterprise / corporate customer e-mail needs; the Sony Ericsson Walkman series of music phones and Cybershot series of cameraphone; etc.

Other features that may be found on mobile phones include GSM navigation, music (MP3) and video (MP4) playback, RDS radio receiver, alarms, memo recording, personal digital assistant functions, ability to watch streaming video, video download, video calling, built-in cameras and camcorders (video recording), with autofocus and flash, ringtones, games, instant messaging, Internet e-mail and browsing, and serving as a wireless modem.

The most commonly used data application on mobile phones is sure to be SMS text messaging. The first SMS text message is supposed to be sent from a computer to a mobile phone in 1992 in the UK, while the first person- to-person SMS from phone to phone was sent in Finland in 1993.

Other non-SMS data services used on mobile phones include mobile music, downloadable logos and pictures, gaming, gambling, adult entertainment, and advertising.

It should be noted that GSM mobile phones require a small microchip called a SIM (Subscriber Identity Module) card to function. The SIM card is approximately the size of a small postage stamp and is usually placed underneath the battery in the rear of the unit. The SIM securely stores the service-subscriber key (IMSI) used to identify a subscriber on mobile telephony devices, such as mobile phones and computers. The SIM card allows users to change phones by simply removing the SIM

card from one mobile phone and inserting it into another mobile phone or broadband telephony device.

4. Check your comprehension.

1. How do manufacturers of mobile phones try to do their products more attractive? 2. What components are common for many mobile phones? 3. What is the role of SIM card? 4. What does a battery serve for? 5. What are feature phones? 6. What are smartphones? 7. What enabled more features to the mobile phones? 8. What services can modern mobile phones offer? 9. What are SMS messages and where was the first SMS from phone to phone sent? 10. What is the SIM card and what is it used for?

5. Translate the phrases with verbals and analyze them.

By implementing additional functions; to try to differentiate their own products; components found on all phones; a rechargeable battery providing the power source for the phone functions; an input mechanism and display to allow the user to interact with the phone; services to allow users to make calls and send text messages; a SIM card to allow an account to be swapped among devices; low-end mobile phones being referred to as feature phones; handsets with more advanced computing ability; increased processing power of microchips; features to be added to phones; memo recording; ability to watch streaming video; built-in cameras; instant messaging and browsing and serving as a wireless modem; the most commonly used data application; the SIM card placed underneath the battery; a small microchip called a SIM card; to store the service-subscriber key used to identify a subscriber; to allow users to change phones by removing the SIM card and inserting it into another phone.

6. Make up an essay for text 2.

7. Read text 3 and speak about different types of mobile phones and their functions.

Text 3. TYPES OF MODERN MOBILE PHONES
A smartphone

It is well-known that a smartphone is a mobile phone that offers more advanced computing ability and connectivity than a contemporary basic feature phone. Smartphones and feature phones may be thought of as handheld computers integrated within a mobile telephone. But while being based on a specific platform, a smartphone allows the user to install and run more advanced applications than most feature phones. Smartphones run complete operating system software providing a platform for application developers.

The first smartphone is said to be called Simon. It was designed by IBM and released to the public in 1993. Besides being a mobile phone, it also contained a calendar, address book, world clock, calculator, note pad, e-mail, send and receive fax, and games. It had no physical buttons to dial with. Instead customers used a touch screen to select phone numbers with a finger or create facsimiles and memos with an optional stylus. Text was entered with a unique on-screen "predictive" keyboard. Manufacturers consider Nokia to launch the first color screen communicator model, which was the first true smartphone with an open operating system.

A smart book

A smart book is considered to be a concept of a mobile device that falls between smartphones and netbooks, delivering features usually found in smartphones (always on, all-day battery life, 3G connectivity, GPS) in a slightly larger device with a full keyboard. Smart books tend to be designed to work with online applications.

BlackBerry

BlackBerry is a line of mobile e-mail and smartphone devices developed and designed by Canadian company Research In Motion (RIM) in 1996. BlackBerry functions as a Personal Digital Assistant (PDA) with address book, calendar, and to-do list capabilities. It also functions as a portable media player with support for music and video playback and camera picture and video capabilities. BlackBerry is primarily known for its ability to send and receive Internet e-mail wherever mobile network service coverage is present, or through Wi-Fi connectivity. BlackBerry is mainly a messaging phone with the largest array of messaging features in a smartphone today. This includes auto-text, auto-correct, text prediction, support for many languages, keyboard shortcuts, text emoticons, push e-mail, push Facebook and Myspace notifications, push instant messaging with BlackBerry Messenger, and many other useful features.

The first BlackBerry device was introduced in 1999 as a two-way pager. In 2002 the more commonly known smartphone BlackBerry was released, which supports push e-mail, mobile telephone, text messaging, Internet faxing, Web browsing and other information services. It is an example of a convergent device.

Twitter

Twitter is known to be a social and micro blogging service, owned and operated by Twitter Inc., that enables its users to send and read other user's messages called tweets. Tweets are text-based posts of up to 140 characters displayed on the author's profile page. Tweets are publicly visible by default; however senders can restrict message delivery to their friends list. Users may subscribe to other author tweets, this is known as following, and subscribers are known as followers. As of late 2009, users can follow lists of authors instead of following individual authors. All users can send and receive tweets via the Twitter website, compatible external applications, or by Short Message Service (SMS) available in certain countries.

Since its creation in 2006 by Jack Dorsey, Twitter has gained notability and popularity worldwide. It is sometimes described as the "SMS of the Internet." The use of Twitter's application programming interface (API) for sending and receiving SMS from other applications often dominates the direct use of Twitters.

8. Check your comprehension.

1. What are smartphones? 2. Compare smartphones and feature phones; smartphones and netbooks. 3. When did the first smartphone appear? What kind of a model was it? 4. What did the first smartphone contain? 5. What kind of a smartphone is BlackBerry? 6. What are BlackBerry's main functions? 7. Describe the operational system of BlackBerry. 8. What is a BlackBerry PIN and what is it used for? 9. What possibilities does Twitter give to its users? 10. How can users send and receive their tweets?

9. Read text 4 and speak about iPhone models.

Text 4. THE iPHONE DEVICES
The iPod

The iPod is a portable media player (PMP) designed and marketed by Apple and launched in October 2001. As of June 2010, the product lineup includes the hard drive-based iPod Classic, the touchscreen iPod Touch, the video-capable iPod Nano, and the compact iPod Shuffle. iPod Classic models store media on an internal hard drive, while all other models use flash memory to enable their smaller size. As with many other digital music players, iPods can also serve as external data storage devices.

Apple's iTunes software can be used to transfer music to the devices from computers using certain versions of Apple Macintosh and Microsoft Windows operating systems. For users who choose not to use Apple's software or whose computers cannot run iTunes software, several open source alternatives to iTunes are also available. iTunes and its alternatives may also transfer photos, videos, games, contact information, e-mail settings, web bookmarks, and calendars to iPod models supporting those features.

The iPhone

The iPhone is a line of Internet and multimedia-enabled smartphones designed and marketed by Apple Inc. The first iPhone was introduced in 2007.

An iPhone functions as a camera phone, including text messaging and visual voicemail, a portable media player, and an Internet client with e-mail, web browsing, and Wi-Fi connectivity. The user interface is built around the device's multi-touch screen, including a virtual keyboard rather than a physical one. Third-party applications, launched in mid-2008, have diverse functionalities, including games, reference, GPS navigation, social networking, and advertising for television shows, films, and celebrities.

There have been four generations of iPhone hardware, and they have been accompanied by four major releases of iOS. The iPhone 3G brought 3G cellular network capabilities and A-GPS location. The iPhone 3GS brought a compass, faster processor, and higher resolution camera, including video. The iPhone 4 has two cameras for face time video calling and a higher resolution display. It was released in June 2010.

The iPad

The iPad is a tablet computer designed and developed by Apple. It is particularly marketed as a platform for audio and visual media such as books, periodicals, movies, music and games, as well as web content. Its size and weight, about 700 grams, are between those of most contemporary smart-phones and laptop computers. Apple released the iPad in April 2010.

The iPad runs the same operating system as the earlier iPod and iPhone. It can run its own applications as well as ones developed for the iPhone. Like the iPhone and iPod Touch, the iPad is controlled by a multitouch display sensitive to up to eleven fingers. The iPad uses Wi-Fi or a 3G mobile data connection to browse the

Internet, load and stream media, and install software. The device is managed by iTunes on a personal computer via USB cable.

10. Check your comprehension.

1. What is an iPod? 2. What company launched the iPod and when? 3. What types of iPods do you know? 4. What are iTunes used for? 5. When was the first iPhone introduced? 6. What are iPhone functions? 7. What new did each generation of iPhones acquire? 8. What is iPad? 9. Who released the iPad and when? 10. What common features do iPad have with iPod and iPhone?

11.

A. Find in the texts studied words close in meaning to the words given below.

Investigation, producer, detail, energy, number, velocity, display, movement, facilities, storage, wireless, application, radio set, grown-up, device, modernization, key, keyboard, characteristic, idea, post, demands, information, advancement, ability, subscriber.

To introduce, to help, to demand, to act, to remember, to delete, to input, to develop, to rise, to calculate, to supply, to distinguish, to limit, to launch, to choose, to suggest, to let, to assemble, to connect, to discover, to employ, to widen, to vary, to get, to win, to suppose, to phone, to name, to consist, to show.

Mobile, first / early (devices), modern, next, general, fundamental, embedded, dual, immediate, big, special, individual, numerical, tall, broad, up- to-date, pocket (device).

Between, too, across, which, initially, carefully, mostly, while.

B. Find in the texts studied words with opposite meaning to the words given below.

To prohibit, to send, to worsen, to close, to lose, to subtract, to reduce, to remove, to finish, to appear, to stand, to output.

Stationary, different, corded, private, narrow, low-end, short, light, old, low, civil, unlike, individual, large, complex, peaceful, expensive, compatible, difficult.

Few, seldom, fully.

СПИСОК ИСПОЛЬЗУЕМОЙ ЛИТЕРАТУРЫ

1. Алешугина Е.А., Крюкова Г.К., Лошкарева Д.А. Профессионально ориентированный английский язык для магистрантов: учеб. пос. для вузов. Н. Новгород: ННГАСУ, 2016. 95 с.

2. Английские научно-технические тексты по автоматике, вычислительной технике и электронике / сост. И.М. Гуськова, И.А. Пипко и др. М.: Изд. АН СССР, 1989.

3. Бжиская Ю.В., Краснова Е.В. Английский язык. Информационные системы и технологии. Ростов н/Д.: Феникс, 2008.

4. Зайцева Л.П., Бух М.А. Микроэлектроника: настоящее и будущее : учеб. пособие. М.: Высш. шк., 1998.

5. Когаловский М.Р. Перспективные технологии информационных систем. М.: ДМК Пресс: Компания АйТи, 2003.

6. Макарова И.С. English for Academic and Technical Purposes: A Key to Success. A Handbook for Bachelor, Master and Postgraduate Students. Английский для академических и технических целей: ключ к успеху: справ. пособие для студентов бакалавриата, магистратуры и аспирантуры. СПб.: Политехника, 2020. 58 с.

7. Милютин Э.А., Шитов Ю.И. Английский язык для программистов: тексты и упражнения. М.: Память, 1994.

8. Письменный А.А. Англо-русский словарь по персональным компьютерам и информатике: в 2 т. Ростов н/Д: Книга, 2002.

9. Радовель В.А. Английский язык для технических вузов: учеб. пособие. М.: Издательско-торговая корпорация «Дашков и К», 2010.

10. Радовель В.А. Элективный курс английского языка «Основы информатики»: учеб.-метод. пособие для учащихся X-XI классов средней школы. Ростов н/Д.: Феникс, 2004.

11. Слепович В.С. Деловой английский. Business communication. Мн.: «ТетраСистемс», 2001. 256 с.

12. Фёдорова Г.Н. Информационные системы. Информатика и вычислительная техника. М.: Академия, 2011.

13. Brown P., Mullen N. English for Computer Science. Oxford University Press, 1987.

14. Gore M.R., Stubbe J.W. Computers and Information Systems. 2nd ed. N.Y; L; Paris; Tokyo, 1994.

15. Hill D. Vocational English Level 2 (Pre-intermediate) English for IT Coursebook. Longman, 2012.

16. Olejniczak M. Vocational English Level 1 (Elementary) English for IT Coursebook. Longman, 2011.

17. Que's Computer and Internet Dictionary. 6th ed. Bryan Phaffenger and David Wall, 1996.

СОДЕРЖАНИЕ	Стр.

Учебное издание

Составители:
Медведева Светлана Александровна
Голуб Лариса Николаевна

АНГЛИЙСКИЙ ЯЗЫК
ДЛЯ АКАДЕМИЧЕСКИХ И ПРОФЕССИОНАЛЬНЫХ ЦЕЛЕЙ
09.04.03 ПРИКЛАДНАЯ ИНФОРМАТИКА
(УРОВЕНЬ МАГИСТРАТУРЫ)
Учебное пособие

Редактор Осипова Е.Н.