

МИНИСТЕРСТВО ОБРАЗОВАНИЯ РЕСПУБЛИКИ БЕЛАРУСЬ

**УЧРЕЖДЕНИЕ ОБРАЗОВАНИЯ
«БРЕСТСКИЙ ГОСУДАРСТВЕННЫЙ ТЕХНИЧЕСКИЙ УНИВЕРСИТЕТ»**

КАФЕДРА ИНОСТРАННЫХ ЯЗЫКОВ ПО ТЕХНИЧЕСКИМ СПЕЦИАЛЬНОСТЯМ

DIGITAL REALITY

**Пособие по английскому языку
для аудиторной и внеаудиторной самостоятельной работы
для студентов дневной формы обучения специальностей
1-40 03 01 "Искусственный интеллект" и
1-53 01 02 "Автоматизированные системы обработки
информации"**

Брест 2015

Пособие по английскому языку для аудиторной и внеаудиторной самостоятельной работы для студентов дневной формы обучения специальностей "Искусственный интеллект" и "Автоматизированные системы обработки информации" направлено на углубление языковых компетенций обучающихся. Основная цель данного пособия – развитие и закрепление навыков практического владения английским языком студентами.

Задания составлены в соответствии с учебной рабочей программой, разработанной на кафедре иностранных языков по техническим специальностям БрГТУ и рекомендованы к изданию.

Составитель: Бань О.В., ст. преподаватель

Рецензент: Тарасевич Н.А., к.ф.н., доцент, заведующая кафедрой английской филологии Учреждения образования «БрГУ имени А.С. Пушкина»

CONTENTS

UNIT 1 INTRODUCTION TO COMPUTER SOFTWARE	4
UNIT 2 LEARNING ABOUT OPERATING SYSTEMS	8
UNIT 3 THE SOFTWARE DEVELOPMENT CYCLE	13
UNIT 4 THE RISE OF THE WORLD WIDE WEB	17
UNIT 5 TOP 10 MOST POPULAR PROGRAMMING LANGUAGES	23
UNIT 6 RECOGNIZING DIFFERENT TYPES OF COMPUTERS	29
UNIT 7 COMPUTER HARDWARE COMPONENTS	34
UNIT 8 COMPUTER HARDWARE PERIPHERALS	40
UNIT 9 BASIC NETWORKING	44
UNIT 10 COMPUTER STORAGE AND MEMORY	49
UNIT 11 INPUT DEVICES	53
APPENDIX 1	58
APPENDIX 2	62

UNIT 1

Introduction to Computer Software

1. You should study the following words and word combinations before reading the text. They will also be necessary for other tasks in this unit, don't ignore them.

Programmer	–	программист
To execute	–	запускать (программу)
Features	–	характеристики
Bug	–	ошибка (в программном обеспечении)
Open source	–	открытый код
To crash	–	аварийно завершать работу
To terminate	–	прекращать работу (син. to crash)
End user	–	пользователь
To abort	–	принудительно завершить работу (вручную)
Compatible	–	совместимый (об оборудовании)
Closed source	–	закрытый код

Proprietary software - ПО, разрабатываемое компаниями для внутреннего использования, защищенное авторским правом, дальнейшее распространение запрещено или строго ограничено.

2. Which word from the above list is being described? Fill in the blanks.

- 1) privately developed and owned technology - _____
- 2) to start a program on a computer - _____
- 3) software in which the license stipulates that the user cannot see, edit, or manipulate the source code of a software program - _____
- 4) an error in a computer program - _____
- 5) an incorrect action attributable to poor judgement, ignorance, or inattention –

- 6) something a computer program is "supposed" to do; these are often reasons to use a particular program or upgrade to a more recent version -

- 7) a person who uses a product or service on a computer - _____
- 8) to end a program or a process before its completion - _____
- 9) capable of being used without modification - _____
- 10) a program in which the code is distributed allowing programmers to alter and change the original software as much as they like - _____
- 11) a computer failure due to faulty hardware or a serious software bug -

3. Read the text carefully trying to understand as much as possible and translate it.

For as long as there has been computer hardware, there has also been computer software. But what is software? Software is just instructions written by a programmer which tells the computer what to do. Programmers are also known as 'software developers', or just plain 'developers'.

Nothing much is simple about software. Software programs can have millions of lines of code. If one line doesn't work, the whole program could break! Even the process of starting software goes by many different names in English. Perhaps the most correct technical term is 'execute', as in "the man executed the computer program." Be careful, because the term 'execute' also means (in another context) to put someone to death! Some other common verbs used to start a software program you will hear are 'run', 'launch, and even 'boot' (when the software in question is an operating system).

Software normally has both features and bugs. Hopefully more of the former than the latter! When software has a bug there are a few things that can happen. The program can crash and terminate with a confusing message. This is not good. End users do not like confusing error messages such as:

Site error: the file /home7/businfc6/public_html/blog/wordpress/wp-content/plugins/seo-blog/core.php requires the ionCube PHP Loader ioncube_loader_lin_5.2.so to be installed by the site administrator.

Sometimes when software stops responding you are forced to manually abort the program yourself by pressing some strange combination of keys such as ctrl-alt-delete.

Because of poor usability, documentation, and strange error messages, programming still seems very mysterious to most people. That's too bad, because it can be quite fun and rewarding to write software. To succeed, you just have to take everything in small steps, think very hard, and never give up.

I think everyone studying Information Technology should learn at least one programming language and write at least one program. Why? Programming forces you to think like a computer. This can be very rewarding when dealing with a wide range of IT-related issues from tech support to setting up PPC (pay-per-click) advertising campaigns for a client's web site. Also, as an IT professional, you will be dealing with programmers on a daily basis. Having some understanding of the work they do will help you get along with them better.

Software programs are normally written and compiled for certain hardware platforms. It is very important that the software is compatible with all the components of the computer. For instance, you cannot run software written for a Windows computer on a Macintosh computer or a Linux computer. Actually, you can, but you need to have special emulation software or a virtual machine installed. Even with this special software installed, it is still normally best to run a program on the kind of computer for which it was intended.

There are two basic kinds of software you need to learn about as an IT professional. The first is closed source or proprietary software, which you are not free to modify and improve. An example of this kind of software is Microsoft Windows or Adobe Photoshop. This software model is so popular that some people believe it's the only model there is. But there's a whole other world of software out there.

The other kind of software is called open source software, which is normally free to use and modify (with some restrictions of course). Examples of this type of software include most popular programming languages, operating systems such as Linux, and thousands of applications such as Mozilla Firefox and Open Office.

But what is the real difference between open source and closed source software? Is open source software just about saving money? Let's investigate. Let's say for instance you find a bug in the latest version of Mozilla Firefox. The bug is causing a major project to fail and you need to fix it right away. This is not very likely to happen, I realize, but it's just an example. You might take the following steps:

Step 1. Download and unzip (or uncompress) the source code from Mozilla.

Step 2. Use an Integrated Development Environment (IDE) and a debugger to find and fix the bug in the source code. Please note that you will need to know a little C++ to debug applications such as this.

Step 3. Test the fix and then use a compiler to turn the source code into a binary file. This can take a long time for big programs. Once the source code is compiled then the program should work!

Step 4. You are almost done. Now send the bug fix back to the Mozilla Firefox team. They may even use your bug fix in the next release!

Now imagine you find a bug in a proprietary code base such as Microsoft Word. What can you do? Not much, just file a bug report and hope someone fixes it at some point.

This is a rather radical example, but I think it illustrates to a large degree why programmers generally prefer open source software to closed source alternatives. Good programmers love code and they want access to it. Hiding the code from a programmer is like hiding the car engine from an auto mechanic. We don't like it!

Now you have learned a little about software. You will learn more about software applications and programming in later units.

4. Look through the text once again, find English equivalents to the following Russian words and word combinations and write them down.

- 1) разработчик - _____
- 2) строка кода - _____
- 3) запускать программу (4 варианта) - _____
- 4) сообщение об ошибке - _____
- 5) удобство и простота в использовании - _____
- 6) программное обеспечение для генерации в режиме реального времени ожидаемых правильных выходных сигналов схемы и для сравнения их с сигналами испытываемой ИС или ПП - _____
- 7) приложение - _____
- 8) rar-архивировать, распаковать файлы - _____
- 9) интегрированная среда разработки - _____
- 10) файл, содержащий двоичные данные или исполняемый код - _____

5. Insert the omitted forms of the following irregular verbs:

_____	_____	been
Do	_____	_____
_____	broke	_____
_____	_____	known
Think	_____	_____
Have	_____	_____
_____	got	_____
_____	_____	written
Find	_____	_____
_____	sent	_____
_____	_____	might
Can	_____	_____

6. Complete each sentence with the necessary word from the text.

- 1) End users _____ not like confusing error messages.
- 2) Programmers are also known as 'software developers', or just _____ 'developers'.
- 3) Programming still seems very mysterious _____ most people.
- 4) Be careful, because the term '_____' also means (in another context) to put someone to death!
- 5) The first is closed source or proprietary software, _____ you are not free to modify and improve.
- 6) _____ the code from a programmer is like _____ the car engine from an auto mechanic.

7. All words are in a mess! Try to fix this problem and make up the sentences.

- 1) What, programmer, software, the, is, written, by, a, which, tells, computer, to, do, just, instructions.
- 2) Certain, written, platforms, normally, and, compiled, for, software, hardware, programs, are.
- 3) You, the, is, fail, causing, right, a, project, to, and, need, to, bug, fix, it, away, major.
- 4) Love, to, code, and, good, they, want, programmers, access, it.

8. Discussion Questions.

- 1) Have you ever written or modified any software? If so, what were the challenges you faced? If not, why not?
- 2) Name three pieces of software you use frequently. Why do you use them? What would you change about them?
- 3) Pretend you are the world's best programmer and can write computer code as fast as you can think. What kind of software would you write?

UNIT 2

Learning About Operating Systems

1. You should study the following words and word combinations before reading the text. They will also be necessary for other tasks in this unit, don't ignore them.

CLI (command line interface)	–	командная строка
Compression	–	архивация
Device driver	–	драйвер устройства
File permissions	–	разрешения для файла
To format	–	форматировать, изменять
GUI (graphical user interface)	–	графический интерфейс пользователя
Hidden file	–	скрытый файл
Kernel	–	ядро
Log off / log on	–	входить в систему/выходить из системы
Multitasking	–	многозадачность
OS (operating system)	–	ОС
VM (virtual machine)	–	ВМ (виртуальная машина)

2. Which word from the above list is being described? Fill in the blanks.

- 1) a GUI or CLI software link between the computer and operator; also provides a framework for productivity software such as an office suite, web browser, or programming languages - _____
- 2) to terminate a connection to a computer or network - _____
- 3) the fundamental part of an operating system responsible for providing access to the machine's hardware - _____
- 4) a text-only link between a computer and its operator - _____
- 5) a set of strict rules for controlling read, write, and execute access to a file or directory - _____
- 6) to prepare a device to store data, erasing any existing data - _____
- 7) a method of packing data in order to save disk storage space or download time - _____
- 8) a software program which mimics the performance of one or more hardware devices in order to run software independently of the actual hardware - _____
- 9) concurrent execution of two or more tasks by a processor - _____
- 10) a file which does not appear by default in a directory listing; normally for security reasons - _____
- 11) software which converts the data from a component or peripheral into data that an operating system can use - _____
- 12) an icon based link between a computer and its operator - _____

3. Read the text carefully trying to understand as much as possible and translate it.

An operating system is a generic term for the multitasking software layer that lets you perform a wide array of 'lower level tasks' with your computer. By low-level tasks we mean:

- the ability to log on with a username and password
- log off the system and switch users
- format storage devices and set default levels of file compression
- install and upgrade device drivers for new hardware
- install and launch applications such as word processors, games, etc
- set file permissions and hidden files
- terminate misbehaving applications

A computer would be fairly useless without an OS, so today almost all computers come with an OS pre-installed. Before 1960, every computer model would normally have its own OS custom programmed for the specific architecture of the machine's components. Now it is common for an OS to run on many different hardware configurations.

At the heart of an OS is the kernel, which is the lowest level, or core, of the operating system. The kernel is responsible for all the most basic tasks of an OS such as controlling the file systems and device drivers. The only lower-level software than the kernel would be the BIOS, which isn't really a part of the operating system. We discuss the BIOS in more detail in another unit.

The most popular OS today is Microsoft Windows, which has about 85% of the market share for PCs and about 30% of the market share for servers. But there are different types of Windows OSs as well. Some common ones still in use are Windows 98, Windows 2000, Windows XP, Windows Vista, and Windows Server. Each Windows OS is optimized for different users, hardware configurations, and tasks. For instance Windows 98 would still run on a brand new PC you might buy today, but it's unlikely Vista would run on PC hardware originally designed to run Windows 98.

There are many more operating systems out there besides the various versions of Windows, and each one is optimized to perform some tasks better than others. Free BSD, Solaris, Linux and Mac OS X are some good examples of non-Windows operating systems.

Geeks often install and run more than one OS on a single computer. This is possible with dual-booting or by using a virtual machine. Why? The reasons for this are varied and may include preferring one OS for programming, and another OS for music production, gaming, or accounting work.

An OS must have at least one kind of user interface. Today there are two major kinds of user interfaces in use, the command line interface (CLI) and the graphical user interface (GUI). Right now you are most likely using a GUI interface, but your system probably also contains a command line interface as well.

Typically speaking, GUIs are intended for general use and CLIs are intended for use by computer engineers and system administrators. Although some engineers only use GUIs and some diehard geeks still use a CLI even to type an email or a letter.

Examples of popular operating systems with GUI interfaces include Windows and Mac OS X. Unix systems have two popular GUIs as well, known as KDE and Gnome, which run on top of X-Windows. All three of the above mentioned operating

systems also have built-in CLI interfaces as well for power users and software engineers. The CLI in Windows is known as MS-DOS. The CLI in Max OS X is known as the Terminal. There are many CLIs for Unix and Linux operating systems, but the most popular one is called Bash.

In recent years, more and more features are being included in the basic GUI OS install, including notepads, sound recorders, and even web browsers and games. This is another example of the concept of 'convergence' which we like to mention.

A great example of an up and coming OS is Ubuntu. Ubuntu is a Linux operating system which is totally free, and ships with nearly every application you will ever need already installed. Even a professional quality office suite is included by default. What's more, thousands of free, ready-to-use applications can be downloaded and installed with a few clicks of the mouse. This is a revolutionary feature in an OS and can save lots of time, not to mention hundreds or even thousands of dollars on a single PC. Ubuntu's OS market share is growing very quickly around the world.

As an IT professional, you will probably have to learn and master several, if not all, the popular operating systems. If you think this sort of thing is fun and interesting, then you have definitely chosen the right career.

We have learned a little about operating systems in this introduction and you are ready to do more research on your own. The operating system is the lowest software layer that a typical user will deal with every day. That is what makes it special and worth studying in detail.

4. Look through the text once again, find English equivalents to the following Russian words and word combinations and write them down.

- 1) выполнять широкий спектр низкоуровневых задач - _____
- 2) включен по умолчанию - _____
- 3) устанавливать и обновлять драйвера - _____
- 4) встроенный интерфейс - _____
- 5) запускать приложения - _____
- 6) яркие компьютерщики - _____
- 7) отключать «лагающие» приложения - _____
- 8) двойная загрузка - _____
- 9) доля рынка - _____

5. Insert the omitted forms of the following irregular verbs:

Mean	_____	_____
_____	set	_____
_____	came	_____
_____	_____	bought
Build	_____	_____
_____	_____	chosen
Learn	_____	_____
_____	dealt	_____
_____	_____	made

6. Open the brackets using the proper tense-form of the verb. Translate the sentences into Russian.

- 1) The company switched from FAT32 to NTFS file system because the former (not to support) _____ file permissions.
- 2) Most users (to prefer) _____ an icon-based GUI over a command line option.
- 3) Zip and mp3 (to be) _____ two common file compression examples.
- 4) Last month the system administrator (to need) _____ to upgrade the kernel in order to provide native support for Serial ATA drives.
- 5) UNIX is the original multitasking environment and (to be designed) _____ from the beginning to share resources over a network.
- 6) In order to run Java programs in Windows one (to need) _____ to download an appropriate virtual machine.
- 7) Linux (to develop) _____ originally by Linus Torvalds, who wanted a free Unix-like operating system that (to run) _____ on standard PC hardware.
- 8) The IT support technician asked the end user if he (to update) _____ recently any device drivers.
- 9) The administrator (to be upset) _____ when the end user found a way to display and then delete several hidden files.
- 10) The server (to set) _____ to automatically log off users after 10 minutes of inactivity.
- 11) The computer user could not log on because he (to forget) _____ his username and password.
- 12) The man was surprised at how similar in functionality X (to be) _____ to Microsoft Windows.

7. Mark the true sentences with "+" and the false ones with "-". Write down the corrected parts of the false sentences.

- 1) Geeks often install and run more than one OS on a single computer. _____
- 2) An operating system is a generic term for the multitasking software layer that lets you perform a wide array of 'higher level tasks' with your computer. _____
- 3) An OS must have at least two kinds of user interface. _____
- 4) Ubuntu is a Microsoft operating system which is not free, and ships with nearly every application you will ever need already installed. _____
- 5) A computer would be fairly useless without an OS, so today almost all computers come with an OS pre-installed. _____
- 6) Each Windows OS is optimized for one user, one hardware configuration, and one task. _____
- 7) GUIs are intended for general use and CLIs are intended for use by computer engineers and system administrators. _____

8. Discussion Questions.

- 1) Which operating systems have you tried? Which do you like best? Why?
- 2) What users typically prefer CLI operating systems? What users typically prefer GUI operating systems? Why?
- 3) Research one of the following operating systems and write a short review: MS-DOS, Windows 7, Mac OSX, Android, IOS, FreeBSD, Linux.

Review: _____

UNIT 3

The Software Development Cycle

1. You should study the following words and word combinations before reading the text. They will also be necessary for other tasks in this unit, don't ignore them.

Freeware	- свободные программные средства(программы без исходного кода, которые можно свободно распространять)
Help file	- справочный файл
Patch	- патч, "заплата" (ПО для оперативного исправления ошибки в программе, часто размещается на сайте разработчика)
RC (release candidate)	- предвыпускная версия (версия ПО, собранная перед выпуском нового релиза). Над этой версией уже не ведутся никакие работы, кроме тестирования и подготовки к сдаче
Shareware	- демоверсия, условно-бесплатное программное обеспечение (предоставляется бесплатно на короткий срок, по истечении которого пользование необходимо оплачивать, или с другими оговорками)
Upgrade	- обновлять, модернизировать (ПО)
Alpha version	- альфа-версия
Beta version	- бета-версия

2. Which word from the above list is being described? Fill in the blanks.

1) to replace an older version of software or hardware with a newer version - _____

2) normally the first version of a software application that is feature-ready and released to testers - _____

3) proprietary software which can be distributed freely but is limited by features and/or time limit until a full version is purchased - _____

4) software distributed without cost by the developer which normally cannot be modified or sold without permission - _____

5) a piece of software that has passed the beta testing stage and is almost ready to be released to the public - _____

6) a software program used for testing purposes before it is released to the public - _____

7) a software update intended to fix bugs or security holes in a software release - _____

8) a file containing instructions how to use a certain feature or program - _____

3. Read the text carefully trying to understand as much as possible and translate it.

Without software applications, it would be very hard to actually perform any meaningful task on a computer unless one was a very talented, fast, and patient programmer. Applications are meant to make users more productive and get work done faster. Their goal should be flexibility, efficiency, and user-friendliness.

Today there are thousands of applications for almost every purpose, from writing letters to playing games. Producing software is no longer the lonely profession it once was, with a few random geeks hacking away in the middle of the night. Software is a big business and the development cycle goes through certain stages and versions before it is released.

Applications are released in different versions, including alpha versions, beta versions, release candidates, trial versions, full versions, and upgrade versions. Even an application's instructions are often included in the form of another application called a help file.

Alpha versions of software are normally not released to the public and have known bugs. They are often seen internally as a 'proof of concept'. Avoid alphas unless you are desperate or else being paid as a 'tester'.

Beta versions, sometimes just called 'betas' for short, are a little better. It is common practice nowadays for companies to release public beta versions of software in order to get free, real-world testing and feedback. Betas are very popular and can be downloaded all over the Internet, normally for free. In general you should be wary of beta versions, especially if program stability is important to you. There are exceptions to this rule as well. For instance, Google has a history of excellent beta versions which are more stable than most company's releases.

After the beta stage of software development comes the release candidates (abbreviated RC). There can be one or more of these candidates, and they are normally called RC 1, RC 2, RC 3, etc. The release candidate is very close to what will actually go out as a feature complete 'release'.

The final stage is a 'release'. The release is the real program that you buy in a shop or download. Because of the complexity in writing PC software, it is likely that bugs will still find their way into the final release. For this reason, software companies will offer patches to fix any major problems that end users complain loudly about.

Applications are distributed in many ways today. In the past most software has been bought in stores in versions called retail boxes. More and more, software is being distributed over the Internet, as open source, shareware, freeware, or traditional proprietary and upgrade versions.

4. Look through the text once again, find English equivalents to the following Russian words and word combinations and write them down.

- 1) удобство для пользователя - _____
- 2) распространять - _____
- 3) гибкость - _____

- 4) розничные коробки - _____
- 5) оценочная, пробная версия – _____
- 6) жаловаться - _____
- 7) пилотная версия, опытный образец - _____
- 8) надежный, стабильный - _____
- 9) обратная связь - _____
- 10) быть начеку - _____

5. Insert the omitted forms of the following irregular verbs:

_____	_____	seen
_____	paid	_____
Rise	_____	_____
_____	ate	_____
_____	_____	cut
Can	_____	_____
_____	caught	_____
_____	_____	understood
Bring	_____	_____

6. Write the odd word out:

- 1) install, debug, download, pretend - _____
- 2) start, unzip, launch, boot - _____
- 3) alpha-version, keyboard, proof of concept, trial version - _____
- 4) user-friendliness, politeness, flexibility, efficiency - _____
- 5) geek, hacker, tailor, gamer - _____
- 6) trendy, compatible, modern, up-to-date - _____

7. Open the brackets using the proper tense-form of the verb. Translate the sentences into Russian.

- 1) The beta version of our program (to release) _____ for testing yesterday.
- 2) The woman said she always (to search) _____ for freeware versions of an application before buying one.
- 3) Many companies (to have) _____ a shareware version of their software with a 30-day free trial.
- 4) The help file often (to contain) _____ useful program shortcuts.
- 5) The man (to need) _____ to upgrade his office suite so he could export files as XML.
- 6) Alpha versions _____ (to release) rarely _____ to the public and frequently (to contain) _____ serious bugs.
- 7) Apple (to refer) _____ internally to a release candidate as "the golden master."

UNIT 4

The Rise of the World Wide Web

1. You should study the following words and word combinations before reading the text. They will also be necessary for other tasks in this unit, don't ignore them.

Hypertext	- гипертекст
World Wide Web	- сеть, веб, всемирная паутина
Bulletin Board System (BBS)	- электронная доска объявлений
URL (uniform resource locator)	- унифицированный указатель информационного ресурса (стандартизованная строка символов, указывающая местонахождение документа в интернете)
Domain name	- доменное имя
Hyperlink	- гиперссылка, гипертекстовая связь
Download	- загружать, скачивать
Upload	- загружать в удаленный компьютер (по линии связи)
Cookie	- пароль, порождаемый сервером при первом подключении и отсылаемый пользователю (в системах с удалённым доступом); строка данных (о предыстории обращений пользователя к конкретному веб-серверу)
E-commerce	- электронная торговля, коммерция
Emoticon	- эмоджон, смайлик
ISP (Internet Service Provider)	- поставщик интернет-услуг
W3C (World Wide Web Consortium)	- консорциум W3C
Backbone	- магистраль сети
HTML (HyperText Markup Language)	- язык HTML (стандартный язык, используемый для создания веб-страниц)
Baud	- бод (единица скорости передачи сигнала, измеряемая числом дискретных переходов или событий в секунду)

2. Which word from the above list is being described? Fill in the blanks.

- 1) the coding or tagging syntax used to write documents for web browsers - _____
- 2) a global hypertext system operating on the Internet that enables electronic communication of text and multimedia - _____
- 3) to transfer a file from a local computer to a remote computer - _____
- 4) a symbol that uses the characters on a computer keyboard to convey emotion an email or instant message, such as the smiley face - _____
- 5) a predecessor to modern websites, these were early online communities that users could dial into using a modem - _____
- 6) a document cross-reference technique enabling the retrieval of a related document or resource simply by clicking on an underlined word or image - _____
- 7) any electronic cross-referencing document first prophesized by Vannevar Bush in 1945 - _____
- 8) a text file created by web sites which contains personal information about an end user - _____
- 9) the unique name which identifies a web site - _____
- 10) the term for buying and selling goods and services over the world wide web - _____
- 11) the address which specifies the location of a file on the Internet - _____
- 12) an organization which provides access to the Internet to other organizations - _____

3. Read the text carefully trying to understand as much as possible and translate it.

By the early 1990's, people were using computers in many different ways. Computers were already installed in most schools, offices, and homes. They were commonly used for writing papers, playing games, financial accounting, and business productivity applications. But very few people used them for communication, research, and shopping the way we do now. A man named Tim Berners-Lee changed all that. In 1990, Lee added an exciting hypertext and multimedia layer to the Internet and called it the World Wide Web. The rest, as they say, is history.

Believe it or not, the Web was not the first attempt at building a worldwide online community. Cutting edge geeks have been using online services such as CompuServe all the way back to the early 1980's. There were thousands of other privately run Bulletin Board Systems (BBS) as well, which served the general interest of curious nerds and researchers from around the world. Perhaps the most ambitious project was the French system Minitel, but it never caught on in the rest of the world and eventually faded into obscurity. Experiences on these BBS was poor by today's standards. There was no graphics or even color. There was no sound except of course the obnoxious beeps and gurgles a modem makes when it initiates a dial-up connection to a server.

Bandwidth was also very slow compared to today's speeds. Typical operating speeds were between 300 and 1200 baud. Today, a typical broadband connection is thousands of times faster than this.

The Web was not built for geeks. It was built for everyone. It was built with very high ideals. No single company, government, or organization controls it. It was new and exciting. New ideas and words appeared almost daily. Obscure technical terms became household words overnight. First it was email. Then it was URL and domain name. Then rather quickly came spam, homepage, hyperlink, bookmark, download, upload, cookie, e-commerce, emoticon, ISP, search engine, and so on. Years later we are still making up new words to describe our online world. Now we "google" for information. We "tweet" what's happening around us to others. The new words never seem to stop!

Just because the web seems so chaotic and unorganized compared to more structured companies and governments, doesn't mean its total anarchy. In 1994, Tim Berners-Lee started the W3C, a worldwide organization dedicated to setting standards for the Web. This group is probably the most respected authority for what should and should not be Web standards. W3C's mission is to lead the Web to its full potential.

As a student of English and Technology, you will hear people use the words 'Internet' and 'World Wide Web' almost interchangeably. They are, of course, not the same thing. So what is the difference between the two? Perhaps a simple answer is that the Internet is the biggest network in the world, and the World Wide Web is a collection of software and protocols on that network. I guess a more simple way to put it is, the World Wide Web is an application that runs on The Internet.

The original backbone of the Internet is based on an old military network called ARPANET which was built by ARPA in the late 1960's. ARPANET was built so information could withstand a nuclear war. The idea was not to have a single point of failure. This means if part of the ARPANET was blown up in a nuclear war, the rest of it will still work! What made ARPANET so successful was its packet-switching technology, invented by Lawrence Roberts. The idea is that "packets" of information have a "from" address and a "to" address. How they get from point "a" to point "b" depends on what roads are open to them. Packet switching is a very elegant thing. Without it, the Internet would simply not work.

People view the World Wide Web through a software application called a web browser or simply a "browser" for short. Some popular examples of web browsers include Microsoft Internet Explorer, Google Chrome, Mozilla Firefox, and Apple Safari. Browsers allow people to search, view, and even add and edit data on the World Wide Web.

The Web is not supposed to be a passive experience. Creating new pages for the Web is getting easier all the time. Web editing software is specially designed to work with hypertext languages such as HTML, which is the original specification for the Web. Web editing software normally allows for the WYSIWYG creation of text, images, and hyperlinks between related documents. With web applications such as wikis, MySpace and Facebook, a typical user can create his or her first online presence in a matter of hours.

In the year 1999, the Internet suffered its first financial crash. Many companies selling products and services on the Web were not living up to sales expectations. This was known as the Dot Com Bubble. There were many reasons why this happened, but perhaps the two most important reasons were a combination of slow connection speeds and too much optimism. Very few people had fast internet connections and many people thought the Internet was "just a passing fad". But we know now that the Internet is not a fad. So what happened? Web 2.0 happened!

What is Web 2.0? It's very hard to say. It's just a phrase to describe a transition from the pre-existing state of 'Web 1.0', which was slow, static, and unusable, to a new, 'second web', which was faster, more dynamic, and more usable for the average person. How did these things happen? Easy. Broadband modems enabled sites like video-streaming YouTube to become possible. Better design and development practices enabled social media sites like MySpace and then Facebook to attract hundreds of millions of users. Finally, search engine technology improved on sites like Google where people could actually find the information they were looking for.

What will be the future of the Web? Easy. More speed and more power. In the future, digital distribution on the Internet is likely to replace all other forms of media distribution including CDs, DVDs, and even radio and television broadcasts.

I personally feel lucky to be alive in the age of the Web. It is one of the coolest things ever invented. It is unlikely that such another wonderful and major revolutionary invention will occur in our lifetime. But I can still dream about the Next Big Thing. And who knows? Maybe you will invent it.

4. Look through the text once again, find English equivalents to the following Russian words and word combinations and write them down.

- 1) мультимедийный слой – _____
- 2) революционное изобретение – _____
- 3) мировое онлайн-сообщество – _____
- 4) радио- и телевидение – _____
- 5) прогрессивный, продвинутый компьютерщик – _____
- 6) веб-программное обеспечение для редактирования – _____
- 7) широкополосный модем – _____
- 8) поисковая система, механизм – _____
- 9) компьютерный фанат, ботан – _____
- 10) распределение трансляции – _____
- 11) становиться модным – _____
- 12) устанавливать модемное соединение с сервером – _____
- _____
- 13) уйти в небытие – _____
- 14) отвратительный зум и бульканье – _____
- 15) технология пакетной коммутации – _____
- 16) закладка – _____
- 17) пропускная способность – _____
- 18) пузырь доткомов – _____
- 19) мимолетное увлечение – _____

5. Insert the omitted forms of the following irregular verbs:

_____	cut	_____
Become	_____	_____
_____	_____	led
Hear	_____	_____
_____	_____	blown
Find	_____	_____
_____	could	_____
_____	_____	dreamt
_____	hid	_____

6. Write the following “tricky things” in letters:

- 1) 1980 (year) _____
 - 2) 1999 (year) _____
 - 3) 300 _____
 - 4) 1200 _____
 - 5) 2000 (year) _____
 - 6) 64 _____
 - 7) 2015(year) _____
 - 8) October, 31 _____
 - .9) Madison Sq. 68, R. 649 _____
 - 10) 17 252 430 _____
-

7. Restore the chronological order of the following sentences using the numbers from 1 to 10.

- 1) What made ARPANET so successful was its packet-switching technology, invented by Lawrence Roberts. _____
- 2) In 1990, Lee added an exciting hypertext and multimedia layer to the Internet and called it the World Wide Web. _____
- 3) In 1994, Tim Berner's Lee started the W3C, a worldwide organization dedicated to setting standards for the Web. _____
- 4) Then rather quickly came spam, homepage, hyperlink, bookmark, download, upload, cookie, e-commerce, emoticon, ISP, search engine, and so on. _____
- 5) Better design and development practices enabled social media sites like MySpace and then Facebook to attract hundreds of millions of users. _____
- 6) The Internet is the biggest network in the world, and the World Wide Web is a collection of software and protocols on that network. _____
- 7) Very few people had fast internet connections and many people thought the Internet was "just a passing fad". _____
- 8) There were thousands of other privately run Bulletin Board Systems (BBS) as well, which served the general interest of curious nerds and researchers from around the world. _____

9) In the future, digital distribution on the Internet is likely to replace all other forms of media distribution including CDs, DVDs, and even radio and television broadcasts. _____

10) They were commonly used for writing papers, playing games, financial accounting, and business productivity applications. _____

8. Open the brackets using the proper tense-form of the verb. Translate the sentences into Russian.

1) The man (to make) _____ a hyperlink from his personal homepage to his friend's business.

2) The World Wide Web (to be) _____ the best thing to happen to computing since birth of the PC.

3) One (to use) _____ a URL to go directly to a particular web site.

4) A good web developer (to know) _____ most HTML tags without looking in a book.

5) The web's use of cookies is quite controversial because most users have no idea that their information (to collect and store) _____ on their computer.

6) One of the most popular emoticons is perhaps the wink and smile ;) which (to use) _____ to convey irony or satire.

7) The man decided to switch his ISP because he (to disconnect) _____ often from the internet without warning.

8) The domain name of Microsoft Corporation (to be) _____ microsoft.com.

9) The network administrator (to run) _____ his own BBS as a boy back in the 1980s.

10) Although e-commerce started out small, it (to grow) _____ into a multi-billion dollar industry.

11) The boy (to decide) _____ to upload a picture of his new girlfriend to his Facebook page.

9. Discussion Questions.

1) Was the Internet built for science geeks or the general public? What about the World Wide Web?

2) Did online communities exist before World Wide Web? If so, can you give some examples?

3) Do you think the Web will ever go away? Will it be ever replaced by something better?

UNIT 5

Top 10 Most Popular Programming Languages

1. You should study the following words and word combinations before reading the text. They will also be necessary for other tasks in this unit, don't ignore them.

Compiler	-	компилятор, компилирующая программа
Object- oriented language	-	объектно-ориентированный язык
Virtual machine	-	виртуальная машина
Portability	-	портативность
Procedural language	-	процедурный язык
Syntax	-	синтаксис
Multi-paradigm language	-	язык мультипарадигмы
Interpreter	-	интерпретатор, переводчик
Elegant code	-	простой код
ECMA (European Computer Manufacturer's Association)	-	европ. ассоциация производителей ЭВМ
ECMA Script	-	официальное название Java Script

2. Which word from the above list is being described? Fill in the blanks.

1) a software program which mimics the performance of one or more hardware devices in order to run software independently of the actual hardware - _____

2) a program that takes human readable code and turns it into machine readable code for running at a later time - _____

3) a program that reads a high-level programming language, converts it into machine code, and then immediately runs that code - _____

4) any programming language that is based on a step-by-step approach to solving a problem - _____

5) a measure of how easily programs can be moved to a new system without having to make any changes - _____

6) any programming language optimized for modeling real-world objects and concepts - _____

7) concise, clean, and clear code which allows other developers to understand and extend it - _____

8) a programming language that supports both procedural and object-oriented programming philosophies - _____

9) the official name and standard for the commonly known JavaScript language - _____

10) rules governing the structure of a programming language - _____

3. Read the text carefully trying to understand as much as possible and translate it.

There are hundreds of programming languages in use today. How can you know which one to learn first? How do you know which ones are the best for your IT field of choice? Well, I can't answer that question for you. But why not start by learning one of the top 10 most popular ones? That way you will always be able to get a job in the IT industry.

Learning a programming language is not easy, but it can be very rewarding. You will have a lot of questions at first. Just remember to get help when you need it! You can find out the answer to almost everything on Google nowadays.... so there is no excuse for failure. Also remember that it takes years to become an expert programmer. Don't expect to get good overnight. Just keep learning something new every day and eventually you will be competent enough to get the job done ;)

This article covers the top 10 most popular programming languages as ranked by Tiobe.com in June 2009. We have added some general reviews and comments about each language they listed. Other IT professionals might have different opinions.

Java uses a compiler, and is an object-oriented language released in 1995 by Sun Microsystems. Java is the number one programming language today for many reasons. First, it is a well-organized language with a strong library of reusable software components. Second, programs written in Java can run on many different computer architectures and operating systems because of the use of the JVM (Java virtual machine). Sometimes this is referred to as code portability or even WORA (write once, run anywhere). Third, Java is the language most likely to be taught in university computer science classes. A lot of computer science theory books written in the past decade use Java in the code examples. So learning Java syntax is a good idea even if you never actually code in it.

JavaStrengths: WORA,popularity. Java Weaknesses: Slower than natively compiled languages.

C is a compiled, procedural language developed in 1972 by Dennis Ritchie for use in the UNIX operating system. Although designed to be portable in nature, C programs must be specifically compiled for computers with different architectures and operating systems. This helps make them lightning fast. Although C is a relatively old language, it is still widely used for system programming, writing other programming languages, and in embedded systems.

Strengths: Speed. Weaknesses: Memory management can be difficult to master.

C++ is a compiled, multi-paradigm language written as an update to C in 1979 by Bjarne Stroustrup. It attempts to be backwards-compatible with C and brings object-orientation, which helps in larger projects. Despite its age, C++ is used to create a wide array of applications from games to office suites.

Strengths: Speed. Weaknesses: C++ is older and considered more clumsy than newer object-oriented languages such as Java or C#.

PHP uses a run-time interpreter, and is a multi-paradigm language originally developed in 1996 by Rasmus Lerdorf to create dynamic web pages. At first it was not even a real programming language, but over time it eventually grew into a fully fea-

tured object-oriented programming language. Although PHP has been much criticized in the past for being a bit sloppy and insecure, it's been pretty good since version 5 came out in 2004. It's hard to argue with success. Today, PHP is the most popular language used to write web applications.

Strengths: Web programming, good documentation. Weaknesses: Inconsistent syntax, too many ways to do the same thing, a history of bizarre security decisions.

Visual Basic is an interpreted, multi-paradigm language developed by Microsoft Corporation for the Windows platform. It has been evolving over the years and is seen as a direct descendant of Microsoft's old BASIC from the 1970's. Visual Basic is a good language for scripting Windows applications that do not need the power and speed of C#.

Strengths: None. Weaknesses: Only runs in Windows.

Python is an interpreted, multi-paradigm programming language written by Guido van Rossum in the late 1980's and intended for general programming purposes. Python was not named after the snake but actually after the Monty Python comedy group. Python is characterized by its use of indentation for readability, and its encouragement for elegant code by making developers do similar things in similar ways. Python is used as the main programming choice of both Google and Ubuntu.

Strengths: Excellent readability and overall philosophy. Weaknesses: None.

C# is a compiled, object-oriented language written by Microsoft. It is an open specification, but rarely seen on any non-Windows platform. C# was conceived as Microsoft's premium language in its .NET Framework. It is very similar to Java in both syntax and nature.

Strengths: Powerful and pretty fast. Weaknesses: Only really suitable for Windows.

JavaScript is an interpreted, multi-paradigm language. A very strange one, too. Despite its name, it has nothing whatsoever to do with Java. You will rarely, if ever, see this language outside of a web browser. It is basically a language meant to script behaviors in web browsers and used for things such as web form validation and AJAX style web applications. The trend in the future seems to be building more and more complex applications in JavaScript, even simple online games and office suites. The success of this trend will depend upon advancements in the speed of a browser's JavaScript interpreter. If you want to be correct, the real name of this programming language is ECMAScript, although almost nobody actually calls it this.

Strengths: it's the only reliable way to do client-side web programming. Weaknesses: it's only really useful in a web browser.

Perl is an interpreted, multi-paradigm language written by Larry Wall in 1986. It is characterized by a somewhat disorganized and scary-looking syntax which only makes sense to other PERL programmers. However, a lot of veteran programmers love it and use it every day as their primary language. 10 years ago, Perl was more popular than it is today. What happened? A lot of newer programmers and even old Perl programmers have switched to other languages such as PHP, Python, and Ruby. Perl is perhaps still the best language for text processing and sys-

tem administration scripting. I personally do not recommend it however as a primary programming language.

Strengths: text processing and system administration. Weaknesses: strange syntax, and perhaps too many ways to do the same thing.

Ruby is an interpreted, object-oriented language written by Yukihiro Matsumoto around 1995. It is one of the most object-oriented languages in the world. Everything is an object in Ruby, even letters and numbers can have method calls. It's a great language to learn if you love objects. The only negative is that its love of object-orientation makes it a bit slow, even for an interpreted language.

Strengths: Perhaps the world's most object-oriented language. Weaknesses: its superior object model comes at a price... namely speed.

Okay! Those are the top 10 programming languages in use today and some personal comments about them. Remember that opinions are like noses, everyone has one and they all smell ;) If you disagree, please feel free to write your own opinions.

4. Look through the text once again, find English equivalents to the following Russian words and word combinations and write them down.

- 1) вызовы методов - _____
- 2) многоцветные компоненты ПО - _____
- 3) устрашающе выглядящий синтаксис - _____
- 4) клиентская часть программирования - _____
- 5) нет оправдания для неудачи - _____
- 6) личное мнение - _____
- 7) написанное один раз выполняется где угодно - _____
- 8) по умолчанию, в исходном формате - _____
- 9) занятия по информатике в университете - _____
- 10) встроенная система - _____
- 11) управление памятью - _____
- 12) обратно совместимый - _____
- 13) офисный пакет - _____
- 14) нестабильный и ненадежный - _____
- 15) эксцентричные, странные решения - _____
- 16) прямой потомок - _____
- 17) быть названным в честь змеи - _____
- 18) отступ для удобства чтения - _____
- 19) был задуман как - _____
- 20) не имеет ничего общего с Java - _____
- 21) обработка текстов и система администрирования сценариев - _____
- 22) переключаться на другие языки - _____
- 23) проверка веб-формы - _____

5. Correct the mistakes in every sentence. Write the true variants in the blanks.

- 1) In order to run Java programs in Windows one needs to download a appropriate virtual machine. _____
- 2) The students liked programming Python more then C because they didn't have to use a compiler before execution. _____
- 3) Computer languages that requires an interpreter often run slower than languages that require a compiler. _____
- 4) C is the standard example of a prosedural language. _____
- 5) Java and ANSI C are two attempt at making software portability a priority. _____
- 6) Java is most popular objekt-oriented language. _____
- 7) The junior programer wrote elegant code and used variable names with a clean meaning. _____
- 8) PHP started out as a procedural language, but grow into a multi-paradigm language when it aded support for objects in version 4. _____
- 9) The professor told to us that oficially JavaScript should be called ECMAScript, but that few people does so in practice. _____
- 10) The basic concepts of all programming languages is quite similar, even if the syntax can be quite different. _____

6. Mark the true sentences with "+" and the false ones with "-". Write down the corrected parts of the false sentences.

- 1) Java uses an interpreter, and is an object-oriented language released in 1995 by Sun Microsystems. _____
- 2) Perl is perhaps still the best language for text processing and system administration scripting. _____
- 3) Python is characterized by its use of indentation for readability, and its encouragement for elegant code by making developers do different things in different ways. _____
- 4) Today, PHP is the most popular language used to write office suites. _____
- 5) Visual Basic is a good language for scripting Windows applications that do not need the power and speed of C#. _____
- 6) Programs written in Java can run on many different computer architectures and operating systems because of the use of the compiler. _____
- 7) Everything is an object in Perl, even letters and numbers can have method calls. _____
- 8) Despite its age, C++ is used to create a wide array of applications from games to office suites. _____
- 9) C is a relatively old language, it is still used only for system programming. _____

7. You have learnt about strengths and weaknesses of every language. Join each description with the right language.

- | | |
|---|--------------|
| 1) WORRA, popularity | Visual Basic |
| 2) Its superior object model comes at a price... namely speed | C# |
| 3) Only runs in Windows | Java |
| 4) Strange syntax, and perhaps too many ways to do the same thing | Ruby |
| 5) It's the only reliable way to do client-side web programming | C+ |
| 6) Inconsistent syntax, too many ways to do the same thing, a history of bizarre security decisions | Python |
| 7) Memory management can be difficult to master | PHP |
| 8) Excellent readability and overall philosophy | JavaScript |
| 9) Powerful and pretty fast | Perl |

8. Discussion Questions.

- 1) Which programming languages do you already know? Which ones do you want to learn? Why?
- 2) Which language do you think is best for making banking software? Web pages? Games? Text processing?
- 3) Computer languages such as FORTRAN and COBOL were once very popular, but not so much anymore. Why do you think they lost popularity? Which languages in the top 10 do you think will drop in 10 years? Which one will gain in popularity?

UNIT 6

Recognizing Different Types of Computers

1. You should study the following words and word combinations before reading the text. They will also be necessary for other tasks in this unit, don't ignore them.

Convergence	-	конвергенция, сближение
Embedded system	-	встроенная система
Laptop	-	небольшой портативный компьютер (дорожный)
Legacy system	-	наследственная система
Netbook	-	компактный компьютер для работы с несложными приложениями
PC (personal computer)	-	ПК (персональный компьютер)
PDA (personal digital assistant)	-	персональный цифровой секретарь (карманный)
Print server	-	сервер печати
Router	-	маршрутизатор, роутер
Supercomputer	-	супер-ЭВМ
Tablet PC	-	планшетный, карманный ПК
Workstation	-	рабочая станция

2. Which word from the above list is being described? Fill in the blanks.

1) a high quality computer, typically with lots of RAM, plenty of CPU power, and a high quality video card - _____

2) a physical or software device connecting and facilitating a network with a printer - _____

3) a computer using a relatively slow and specialized processor and ROM chip, normally used to control a particular device such as a washing machine or an MP3 player - _____

4) a portable computer shaped in the form of a notebook and capable of advanced handwriting recognition via use of a stylus or on-screen keyboard - _____

5) a specialized computer which connects two networks - _____

6) a handheld computer about the size of wallet used as an organizer, web browser, game machine, mobile phone, or message recorder; also known as a hand-held computer - _____

7) a computer designed for use by one person at a time - _____

8) a type of computer intended primarily for central distribution of data to other computers on the same network - _____

9) a small laptop with less powerful components meant for surfing the web, reading email, and other basic tasks - _____

- 10) an older device or application that continues to be used because of the high cost of replacing it - _____
- 11) the evolution of devices towards common functionality - _____
- 12) a portable computer with a built-in screen, integrated keyboard, and battery power; also called a 'notebook' - _____
- 13) refers to only the most powerful class of computer, typically designed to perform specialized tasks such as weather prediction, governmental financial calculations, or space research - _____

3. Read the text carefully trying to understand as much as possible and translate it.

In this unit you will learn about different types of computers and what makes them unique.

Computers were not always things you could carry around with you, or even have in your bedroom. Sixty years ago, computers (such as ENIAC) were as big as entire apartments. They were difficult to use and not very powerful by today's standards. They also cost a lot of money to build and operate. So computers were only used by large organizations such as governments, international corporations, and universities.

Throughout the 1950s and 1960s, computers captured the public's imagination in literature, films, and TV. More and more companies wanted computers, even if they didn't always have a good reason to own one. As a result, computers gradually became smaller, cheaper, and more practical to own. This was thanks in part to companies like IBM, which mass-produced computers for the first time and promoted them to medium and large businesses to do things like payroll, accounting, and other number-crunching tasks.

In the 1970s and 1980s a new type of computer started to gain in popularity. It was called the PC or personal computer. For the first time in history, computers were now for everyone. The PC started a revolution which affects nearly everything we do today. The ways we work, play, communicate, and access information have all been radically reshaped due to the invention and laptop evolution of the PC.

PCs are everywhere you look today: at home, at the office, and everywhere in between. Many people still mistakenly believe the term PC is synonymous with a desktop computer running Windows. This is not really true. Really, any computer you use by yourself for general purposes could be called a PC. You probably already own at least one of these types of PCs: desktop computer, PDA or personal digital assistant, workstation.

Besides PCs, there are other types of computers you probably see at work or school. These include: file servers, print servers, web servers.

But not all types of computers are so obvious as the ones above. There are still other kinds of computers that fit inside of other devices and control them. These computers are known as embedded systems.

Embedded systems can be found in traffic lights, TV sets, refrigerators, coffee machines and many more devices. Embedded systems are typically controlled by inexpensive, specialized processors which can only handle very specific tasks.

Types of computers go in and out of fashion as time changes. Older kinds of computers which were very popular in the 20th century (1900's) are now referred to as legacy systems. These include: mainframes, minicomputers, IBM clones. New types of computers are always coming out and replacing or augmenting existing computer types. Examples of new types of computers emerging would be net books, tablet PCs, and even wearable computers.

As you complete this unit, you will learn to differentiate between different computer types. Keep in mind that the lines between computer types are constantly being blurred. This phenomenon is known as convergence.

4. Look through the text once again, find English equivalents to the following Russian words and word combinations and write them down.

- 1) не очень мощные по современным стандартам _____

- 2) захватить воображение - _____
- 3) массово производить компьютеры – _____

- 4) средства массовой информации и крупные компании – _____

- 5) платежная ведомость - _____
- 6) бухгалтерский учет, отчетность - _____
- 7) задачи, требующие быстрой переработки больших объемов цифровых данных или перемалывания чисел – _____

- 8) набирать популярность – _____
- 9) ошибочно считать – _____
- 10) настольный компьютер – _____
- 11) для общих целей – _____
- 12) выполнять специфические задачи – _____

- 13) входить в моду и выходить из моды – _____

- 14) заменять или дополнять существующие типы компьютеров – _____

- 15) носимое устройство, компьютер – _____
- 16) различия постоянно размыты - _____

5. Complete these sentences with the correct form of the words at the end of the sentence.

- 1) The iPhone is a good example of convergence, because it has all the features of a PDA, mobile phone, and an MP3 player in one _____ . *pack*
- 2) Nearly all electronics you can buy today are _____ by embedded systems. *control*
- 3) As laptop computers have become more _____ and affordable, they are steadily replacing the more traditional desktop computer. *power*
- 4) Mainframes and minicomputers used to be _____ edge; now they are known as legacy systems. *cut*
- 5) I wanted to play Call of Duty 4 while I _____ but the graphics card in my netbook could only handle Solitaire. *travel*
- 6) When people use the term 'PC', they are often referring to a desktop computer _____ Windows. *run*
- 7) The modern traveling businessman depends on his PDA to organize all his contacts and _____ . *appoint*
- 8) The secretary could not get a hard copy because the print server _____ . *break*
- 9) The DSL _____ allowed the entire office to share a single Internet connection. *route*
- 10) Because servers hold large amounts of _____ data, it is critical to have daily backup routines in place. *centre*
- 11) A typical supercomputer may have up to 100 _____ and have speeds measured in tens of gigaflops. *process*
- 12) Bill Gates predicted the rise of the tablet PC in 2001, but not much happened until Apple _____ the iPad in 2010. *announce*
- 13) The engineer's latest 3d modeling project was so processor _____, that he wouldn't even begin it until his new workstation arrived. *intense*

UNIT 7

Computer Hardware Components

1. You should study the following words and word combinations before reading the text. They will also be necessary for other tasks in this unit, don't ignore them.

BIOS (basic input output system)	- БИОС, базовая система ввода и вывода
Chipset	- набор микросхем
Coprocessor	- сопроцессор
Graphics card	- графическая карта, плата
GPU (Graphics Processing Unit)	- графический процессор
Microprocessor	- микропроцессор
Motherboard	- материнская плата
NIC (network interface card)	- сетевая интерфейсная карта
PCI (Peripheral Component Interconnect)	- 32-разрядная системная шина, соединение периферийных компонентов
PCI e (Peripheral Component Interconnect Express)	- разъем взаимодействия периферийных компонентов типа Express
Power supply	- источник питания
SATA (serial ATA)	- последовательный АТА
Sound card	- аудиоплата, звуковая плата
Spec (specification)	- спецификация, технические требования
USB (Universal Serial Bus)	- универсальная последовательная шина

2. Which word from the above list is being described? Fill in the blanks.

1) an electronic device constructed from microscopic transistors and other circuit elements on a single integrated circuit; popular manufactures of these devices include Intel, AMD, and IBM - _____

2) this is normally a ROM program that controls the base functionality of the computer such as video, hard drives, optical drives, and keyboard - _____

3) a wired or increasingly wireless PCI or USB device that connects a computer to a network - _____

4) a collection of integrated circuits on the motherboard designed to perform certain tasks such as control components and system buses - _____

5) a newer bus type used mainly for graphic cards and running at speeds up to 16,000 MB/s - _____

6) any computer processor or portion of the CPU which assists the main processor by performing a highly specialized task - _____

7) a relatively fast and convenient computer technology allowing the connection of many peripherals such as digital cameras, scanners, external hard drives, etc; this is a much faster replacement for the old serial bus technology - _____

- 8) a component of a computer which is designed to convert a binary image stored in memory to a display medium - _____
 - 9) a clear set of technical or quantitative requirements - _____
 - 10) a specialized coprocessor designed to handle graphical calculations such as 3D modeling and games - _____
 - 11) the main printed circuit board in a computer that carries the system buses, sockets for processors, memory modules, etc - _____
 - 12) a standard 32-bit bus running at 132 MB/s - _____
 - 13) a separate unit or part of a circuit that supplies the correct amount of electrical current to a computer system - _____
 - 14) a widely used bus for connecting hard disk drives and similar devices to the motherboard and running at speeds up to 6 Gbit/s - _____
 - 15) a component which allows a computer to play and record audio - _____
-

3. Read the text carefully trying to understand as much as possible and translate it.

Due to convergence, the traditional categories we divide computing into are blurring. But for practical reasons, IT professionals can still divide hardware into two main classes: components and peripherals.

Components are primarily core internal devices of a computer which help define what type a computer is, what it is capable of doing, and how well it is capable of doing it. Nothing affects the overall quality of a computer more than its components.

Normally the more expensive a component is, the better it performs. This is a general guideline however and not a steadfast rule. Sometimes you can spend a lot more money on a component with only slightly better performance than one costing half as much. Other times a very expensive component might be based on a completely new technology that is not ready for mass production. In these cases, one is often better off buying a more mainstream part.

Being an early adopter is not always the most practical move when spec'ing components for a new system. Often you can find very powerful hardware at the medium price ranges. There is normally a relatively large sweet-spot in the market.

How can you know if a component is good or bad? You want to be an IT professional, right? IT professionals need good computers without performance bottlenecks. So do some research. Read articles about components on a website. Where do you find them? Just Google it!

One of my favorite places for objective customer reviews of components is Tom's Hardware Guide. Another place for objective information is on well-known websites such as Amazon.com or NewEgg.com. On sites like these, customers will often write both positive and negative reviews shortly after receiving their products. This can help you decide what to buy!

Imagine you want to build your own computer. It's not that difficult or expensive really. I personally think it's kind of fun. How would you start? If you are expe-

rienced, you would start by choosing the components first! Components must be compatible with each other in order to function correctly. For example, not all processors are compatible with all motherboards. Research is necessary to solve your dependencies.

If you can't afford the exact parts you want to get all at the same time, you can use old parts or buy cheaper parts at first if you have to. Why? Because certain components can be upgraded to attain increased performance. For example, a video card (or graphics card) can be upgraded to improve the graphics for a CAD/CAM application or 3D gaming experience.

At the heart of the computer lie several key components sitting on the motherboard including the microprocessor, the chipset, RAM and a ROM firmware instruction set called the BIOS. These core components are connected by several "buses" made to carry information around the system and eventually out to display devices and other peripherals.

The CPU is another name for the 'brain' of the computer and normally includes the microprocessor and RAM. This is what does all the calculations. One or more coprocessors may or may not be needed depending on what the computer is used for. In the 20th century, coprocessors were often used for mathematics such as floating point operations. Today however coprocessors are mostly used for 3D graphics (GPUs), sound generation, and physics applications.

As you probably learned in an earlier chapter, RAM is the memory which allows your computer to hold the operating system and all running programs while your computer is in use. On the contrary, ROM is a kind of permanent memory which is still in tact even when the computer is off. The BIOS is a good example of an application using ROM. The BIOS controls very low-level access to the hardware.

Buses and ports are general terms for connectivity components which connect the different parts of the PC together. These include the serial port, parallel port, PCI and PCIe buses, and the Universal Serial Bus (USB) controller. These devices allow communication between different parts of the system. Also network interface cards are now standard on most motherboards, although USB and PCI versions of the devices are also available.

Your optical drives and hard disk drives are also components in your computer. To allow data interchange between your CPU and drives, SATA, ATA, and SCSI controllers are still widely used.

The core multimedia components include the sound card and graphics card. They make computing more fun and useful for creative professionals such as designers, gamers, and musicians. Multimedia is definitely a place where high-quality components really matter.

Feeding all these components with a steady supply of energy is another component called the power supply. This is an often overlooked piece of hardware but obviously very important! A low quality power supply can cause havoc in a computer system. On the other hand, a bigger than necessary power supply can increase system heat, waste power, and make a lot of noise. Choose wisely!

At the most exterior of the computer we see the computer case. This is meant to look good, protect the components, and provide an easy interface to plug in peripherals. If you are buying or building your own computer, make sure it has a good case.

Apple is well-known for high quality PC and laptop cases, although most major companies have fair to medium quality PC cases. Beware of computers with cheap looking plastic cases. If a computer manufacturer uses a cheap case, it's very likely they are also using other cheap components inside as well. Cheap components equal a slow computer which will break after moderate use. If you intend to use a computer for several hours every day, it makes sense to buy the very best one which fits your needs and budget.

I hope this reading inspires you to learn more about the components in your computer. Just remember that putting computers back together is harder than taking them apart!

4. Look through the text once again, find English equivalents to the following Russian words and word combinations and write them down.

- 1) ПК среднего качества – _____
- 2) умеренное использование ПК – _____
- 3) соответствовать потребностям и бюджету – _____
- 4) собирать и разбирать компьютер – _____
- 5) постоянный источник энергии – _____
- 6) привести к разрушению – _____
- 7) перегрев системы и трата энергии – _____
- 8) простой интерфейс для соединения с периферийным оборудованием – _____
- 9) корпус – _____
- 10) обмен данными между центральным процессором и драйверами – _____
- 11) запущенные, работающие программы – _____
- 12) низкоуровневый доступ к «железу» - _____
- 13) производить вычисления – _____
- 14) операция с плавающей точкой, запятой – _____
- 15) модернизировать с целью повышения производительности – _____
- 16) объективные отзывы покупателей – _____
- 17) первый покупатель, «первопроходец» - _____
- 18) затруднения – _____

5. Write 10 different questions to the text. Be ready to give short answers to them.

- 1) _____

- 2) _____

- 3) _____

- 4) _____

- 5) _____

- 6) _____

- 7) _____

- 8) _____

- 9) _____

- 10) _____

6. Finish the sentences translating the words in brackets.

- 1) Many older microprocessors included a coprocessor to (ускорить) _____ floating-point calculations.
- 2) The technician needed to upgrade the BIOS before (установка) _____ a faster processor in the workstation.
- 3) Speccing a low-end chipset is not a good way to (экономить) _____ money when building a new PC.
- 4) The (сетевая карта) _____ used a PCI bus connector which snapped into the motherboard.
- 5) The latest and greatest games normally (требуют) _____ the latest and greatest graphics cards.
- 6) Most computers come specced with a weak GPU (встроенный) _____ into the motherboard and designed for business applications and simple 2D games.
- 7) The microprocessor is often thought to be the (центральный мозг) _____ of a computer because it performs most of the calculations.
- 8) The processor, RAM, and PCI cards (подключаются) _____ directly into the motherboard.
- 9) The boy grinned ear-to-ear when he received a new PCIe (графическая карта) _____ for Christmas.
- 10) The lead technician became angry when his assistant bought (оборудование) _____ outside the specification.

- 11) Nick upgraded to a 600 watt power supply when he added a new graphics card and two more (жесткие диски) _____.
- 12) The musician (установил) _____ a dedicated sound card to replace the cheap one that came with his computer.
- 13) Almost every computer that (поставляется на рынок) _____ today has some sort of NIC so it can attach to a network.
- 14) USB technology is so fast and easy to use, it is hard to even remember what similar (типы соединений) _____ existed before it.
- 15) The SSD (устройство хранения информации) _____ came with a SATA connection running at 6 Gbit/s.

7. Insert the omitted forms of the following irregular verbs:

Cost	_____	_____
_____	wore	_____
_____	_____	kept
Feel	_____	_____
_____	lent	_____
_____	_____	won
Grow	_____	_____
_____	left	_____
_____	_____	sold

8. Discussion Questions.

1) What components are in your computer right now? Make a list of them. If you can't take your computer apart, look up the model number on the Web.

2) If you could upgrade any three components inside your computer, which ones would you replace and why?

3) Imagine you are a system administrator and your manager is asking you to spec a new workstation for some game testers. Your budget is \$2,500 per workstation, not including the monitor. What components would you spec?

UNIT 8

Computer Hardware Peripherals

1. You should study the following words and word combinations before reading the text. They will also be necessary for other tasks in this unit, don't ignore them.

Daisy-chain	- ряд последовательно соединенных устройств
DIP switch	- впаиваемый в печатную плату пакет миниатюрных переключателей
Display	- экран, монитор, дисплей
Dongle	- защитная заглушка
Modem	- модем
Monitor	- монитор
Plug and play	- включай и работай
Printer	- принтер
Scanner	- сканер
Speaker	- динамик ПК, акустическая система
Webcam	- веб-камера

2. Which word from the above list is being described? Fill in the blanks.

- 1) An internal or external device which converts electrical impulses into audible sound - _____
- 2) a peripheral device that produces a hard copy, normally paper, from data stored in a computer - _____
- 3) a device for capturing a binary digital image from a hard copy - _____

- 4) any specialized video camera designed to transmit video over the internet - _____

- 5) a device which converts digital signals into analog signals, and back again when needed - _____
- 6) a term used to describe the technology where a peripheral device is automatically recognized and configured when it is detected - _____
- 7) a visual interface display between the computer and the operator; normally a large rectangular LCD, LED, or CRT device - _____
- 8) to connect several devices one in back of another - _____
- 9) a hardware device that plugs into a parallel or a USB port, acting as copy protection for a particular software application - _____
- 10) an output screen which contains visual information; some variants include: LED lights, CRT or LCD monitors, and virtual reality goggles - _____
- 11) a set of electric switches using a dual in-line package design - _____

3. Read the text carefully trying to understand as much as possible and translate it.

Peripherals are a generic name for any device external to a computer, but still normally associated with its extended functionality. The purpose of peripherals is to extend and enhance what a computer is capable of doing without modifying the core components of the system. A printer is a good example of a peripheral. It is connected to a computer, extends its functionality, but is not actually part of the core machine.

Do not confuse computer peripherals with computer accessories. An accessory can be any device associated with a computer, such as a printer or a mousepad. A printer is a peripheral, but a mousepad is definitely not one. A mousepad does not extend the functionality of a computer, it only enhances the user experience.

Peripherals are often sold apart from computers and are normally not essential to its functionality. You might think the display and a few vital input devices such as the mouse and keyboard would be necessary, but certain computers such as servers or embedded systems do not require mice, keyboards, or even displays to be functional.

Peripherals are meant to be easily interchangeable, although you may need to install new drivers to get all the functionality you expect out of a new peripheral device. The technology which allows peripherals to work automatically when they are plugged in is called plug and play. A plug and play device is meant to function properly without configuration as soon as it is connected. This isn't always the case however. For this reason some people sarcastically refer to the technology as 'plug and pray'.

Still, plug and play was a big deal when it was introduced in the 1990's. Before then, installing a new peripheral could take hours, and could even require changing some jumper settings, DIP switches, or even hacking away at drivers or config files. It was not a fun time except for real hardware geeks. With plug and play technology, all the nasty jumpers and DIP switches moved inside the peripheral and were virtualized into firmware. This was a clear victory for the common, nontechnical person!

Peripherals normally have no function when not connected to a computer. They connect over a wide array of interfaces. Some common ones from the past include: PS2 ports, serial ports, parallel ports, and VGA ports. These are all being replaced by some new standards including USB, Bluetooth, wifi, DVI, and HDMI ports.

The most common peripheral linking device is probably USB technology. Why? USB is good because you can daisy chain a lot of peripherals together quickly, it is quite fast and growing ever faster in recent editions, and it even provides enough power to supply some smaller peripheral devices like webcams and flash drives.

Some peripherals are even used for security. A good example of this is the dongle. The dongle is often used to protect very expensive applications from software piracy.

Here is a list of common peripherals you should be familiar with as an IT professional. Keep in mind the list is always changing due to changing technologies:

- monitors or displays
- scanners
- printers
- external modems
- dongles
- speakers
- webcams
- external microphones
- external storage devices such as USB-based flash drives and portable hard disk drives

- input devices such as keyboards, mice, etc are normally considered peripherals as well.

Now you know a little more about peripherals and what makes them different from components and accessories. I hope you enjoyed the reading!

4. Look through the text once again, find English equivalents to the following Russian words and word combinations and write them down.

1) внешний модем – _____

2) клавиатура – _____

3) портативные драйвера жесткого диска – _____

4) внешний микрофон – _____

5) защищать приложения от пиратства – _____

6) широкий спектр интерфейсов – _____

7) интерактивное цифровое видео – _____

8) мультимедийный интерфейс высокой четкости – _____

9) переключатель – _____

10) легко взаимозаменяемы – _____

11) не влияет на функциональность – _____

12) жизненно необходимые устройства ввода – _____

13) базовые, основные компоненты системы – _____

14) расширять и улучшать – _____

5. Correct the mistakes in every sentence. Write the true variants in the blanks.

1) The man daisy chained 3 portable USB drives to increase the store on his laptop to 3 TB. _____

2) A DIP switch is an attraction alternative to a jumper setup because there is no parts to lose. _____

3) The man almost miss his connecting flight because the flight display at the airport showed nothing but a large "fatal error" massage. _____

4) The software not longer functioned whan the man lost his dongle. _____

5) You normally need some tipe of modem to connect to the Interenet from home, such as a cable modam or a DSLmodem. _____

6) The old CRT monitor needed to being replaced because it was flikering badly. - _____

7) Thanked to plug and play technology, the new printer works imediately after it was conected. _____

8) Dicient guality printers are very affordable, but the ink can be quite expensive. _____

UNIT 9

Basic Networking

1. You should study the following words and word combinations before reading the text. They will also be necessary for other tasks in this unit, don't ignore them.

Authenticate	-	авторизовать
Client- server	-	клиент-сервер
Distributed computing	-	распределенная обработка данных
Domain	-	домен
Encryption	-	кодирование, шифрование
Ethernet	-	сеть Ethernet
Firewall	-	брандмауэр, межсетевой экран
Groupware	-	ПО коллективного пользования, групповое
LAN (local area network)	-	локальная сеть
Node	-	узел; устройство, подсоединенное к сети
Packet	-	пакет (в коммуникациях)
P-2-P (peer-to-peer)	-	соединение равноправных узлов ЛВС
Protocol	-	протокол
VPN (virtual private network)	-	виртуальная частная сеть
Wi-Fi	-	вай-фай, беспроводной доступ в интернет
WAN (wide area network)	-	глобальная сеть

2. Which word from the above list is being described? Fill in the blanks.

- 1) a networking model where computers seamlessly share data; used primarily to any computer or other device connected to network – _____
- 2) reduce server bottlenecks and reduce costs – _____
- 3) a relatively high security connection to a private network – _____
- 4) to verify that a process is true or genuine - _____
- 5) a networking model in which the functions are divided between "child" computers and a single "parent" computer which stores and controls access to data – _____
- 6) a set of standards or rules which govern communication – _____
- 7) a named group of networked computers that are administered as a unit with common rules and procedures – _____
- 8) the process of making information 'more secure' by rendering it unreadable to anyone but the intended recipient – _____
- 9) software applications that facilitate shared work on documents and information – _____
- 10) a trademarked, nontechnical term used to describe a certain quality of wireless networking compatibility – _____
- 11) a baseband local-area network originally developed by Xerox Corp. Normally running between 10 Mbps and 1,000 Mbps – _____

- 12) a small computer network normally contained within one room or building – _____
- 13) a device or software program designed to prevent unauthorized access to a network – _____
- 14) a collection of bits normally sent through a network that contains data surrounded by error correction information – _____
- 15) a network which covers more than one building or area – _____
- 16) a type of computing in which a computational task is divided into subtasks that execute on a collection of networked computers – _____

3. Read the text carefully trying to understand as much as possible and translate it.

In the simplest explanation, networking is just computers talking to each other. They do this by sending data packets using various protocols and transmission media such as ethernet cable or Wi-Fi connections. Computers must also know how to find other computers on the network. To put it briefly, every computer on the network needs a unique address so messages know where to go after they are sent.

Networks exist for many reasons including:

- distributed computing in a client-server or peer-to-peer networking architecture
- centralized data security and authentication
- elimination of risk of computer downtime.
- combining computers into a single domain to facilitate groupware applications and system administration tasks
- communication and fun!

The types of networks you deal with on a daily basis include local area networks (LANs) and wide area networks (WANs).

Many people today have LANs in their schools, offices, and even their homes. LANs are especially good for sharing Internet access and commonly used files and databases.

Users can also connect to wide area networks (WANs) as well, which are just large LANs spread out over several physical locations. The Internet itself is basically a large WAN, with each node on the network having its own unique IP address.

As you may have read in books or seen in movies, security considerations play a large role when designing networks. Technology such as firewalls can both block and filter unwanted network traffic. Virtual private networks (VPNs) are used to connect remote users to office networks without jeopardizing security. VPNs use strong data encryption to hide data as it is moving between routers over the Internet.

Networking is not something you can master in a week or even a month. Hundreds of books have been written about the subject and many more hundreds will come in the future as technologies mature and evolve. If you work on networks for a living, you are called a network engineer, and you will probably take certification exams by networking companies such as Cisco.

There are other kinds of networking as well which are not always between PCs and servers. An example is Bluetooth technology, which is optimized for networking between common consumer electronics such as mobile phones, mp3 players, and similar devices.

Okay, that's it for now!

4. Look through the text once again, find English equivalents to the following Russian words and word combinations and write them down.

- 1) отправлять пакеты данных – _____
- 2) обычная бытовая электроника – _____
- 3) средства передачи информации – _____
- 4) централизованная система - _____
безопасности данных - _____
- 5) технологии развиваются и совершенствуются – _____
- 6) устранение риска простоя компьютера – _____
- 7) инженер сети – _____
- 8) облегчать выполнение заданий для приложений, использующих групповое ПО – _____
- 9) используем ежедневно – _____
- 10) сообщения безопасности – _____
- 11) нежелательный сетевой трафик – _____
- 12) подвергать опасности – _____
- 13) удаленный пользователь – _____
- 14) овладевать - _____

5. Mark the true sentences with "+" and the false ones with "-". Write down the corrected parts of the false sentences.

- 1) Many people today have WANs in their schools, offices, and even their homes.

- 2) If you work on networks for a living, you are called a network designer.

- 3) LANs are especially good for sharing Internet access and commonly used files and databases. _____
- 4) Networks exist for many reasons including centralized data security and spam filtering. _____
- 5) The Internet itself is basically a large WAN, with each node on the network having its own unique IP address. _____
- 6) Every computer on the network needs a unique code so messages know where to go after they are sent. _____
- 7) Virtual private networks (VPNs) are used to connect remote users to office networks without jeopardizing security. _____
- 8) VPNs use strong data encryption to show data as it is moving between protocols over the Internet. _____

6. Open the brackets using the proper tense-form of the verb. Translate the sentences into Russian.

- 1) The computer was very slow and (to take) _____ nearly 10 seconds to authenticate a user.
- 2) The man (to use) _____ Bluetooth technology to create a personal area network (PAN) between his mobile phone and his computer.
- 3) A standard protocol such as TCP/IP or IPX (to use) _____ to define client-server interactions.
- 4) The professor (to say) _____ the Internet could theoretically (to use) _____ as a giant distributed computing platform.
- 5) System administrators in large organizations (to use) _____ a domain to save time on common administration tasks.
- 6) The company used SSL encryption on its ecommerce web site to protect its customers while they (to make) _____ online purchases.
- 7) The man could not connect to the LAN because he (to forget) _____ to bring his RJ-45 ethernet cable.
- 8) When the firewall (to deactivate) _____, the hacker found it easy to penetrate the system and upload a rootkit virus.
- 9) Since the members of the project (to be) _____ thousands of miles apart, a groupware application was an integral part of the solution.
- 10) The network administrator (to talk) _____ with great enthusiasm about upgrading the LAN to Gigabit Ethernet.
- 11) The Networking 101 book (to say) _____ that all connected PCs, servers, and printers are nodes on a network.
- 12) The network administrator was upset because the network connection (to keep) _____ dropping packets.
- 13) BitTorrent (to be) _____ a popular and controversial peer-to-peer networking program used by millions of people to distribute data.
- 14) Before the Internet age, corporate LANs often (to run) _____ on IPX or NetBEUI protocol.
- 15) The man (to connect) _____ to his work intranet from home using a virtual private network.
- 16) The businessman (to be upset) _____ because he could not get his laptop to connect to the Wi-Fi hotspot at the convention.
- 17) The technical college's WAN (to connect) _____ all the county campuses.

7. Discussion Questions.

- 1) Back in the 1980's it was rare for personal computers to perform networking duties. Why? How did computers share data before the rise of the LAN and the Web?
- 2) What specific benefits does networking computers give us? What are the risks involved?

UNIT 10

Computer Storage and Memory

1. You should study the following words and word combinations before reading the text. They will also be necessary for other tasks in this unit, don't ignore them.

EPROM (erasable programmable read only memory)	-	стираемое программируемое ПЗУ
Floppy disk drive	-	дисковод для гибких дисков
Hard disk drive	-	дисковод для жестких дисков
Magnetic storage	-	магнитное запоминающее устройство
Optical storage	-	оптическое зу
RAM (random access memory)	-	оперативная память
ROM (read-only memory)	-	постоянная память
Semiconductor storage	-	полупроводниковое зу
SSD (solid state drive)	-	твердотельная память, полупроводниковый накопитель
Tape drive	-	зу на магнитной ленте
VRAM (video RAM)	-	ОЗУ для видео

2. Which word from the above list is being described? Fill in the blanks.

1) a storage device using rotating magnetic platters to quickly store and retrieve digital data - _____

2) a type of storage using integrated circuits to store data; examples include RAM, ROM, and flash memory- _____

3) a legacy storage device which can read and write data slowly from a removable magnetic medium (normally 3.5" in diameter and holding 1.44 MB of data) - _____

4) a newer data storage device meant to replace a traditional hard disk drive; these are characterized by speed, non-moving parts, and lower energy consumption - _____

5) a storage technique using patterns of charged particles on a metallic surface to store data; examples include hard disk drives, tape drives, floppy disk drives - _____

6) this is either dedicated or shared memory set aside specifically for the graphics processor - _____

7) a data storage technique using a pattern of markings on a disc that can be read by a laser; examples include CD-ROM, and DVD-ROM technology - _____

8) a type of computer memory known for being volatile (temporary) and fast – _____

9) a type of memory which is known for being non-volatile (permanent) and fast – _____

10) a legacy storage device using magnetic ribbon inside a plastic cassette –

11) a non-volatile (permanent) memory type that is erasable via ultra-violet light and reprogrammable - _____

3. Read the text carefully trying to understand as much as possible and translate it.

In this unit you will learn the differences between computer memory and computer storage. Memory and storage are important concepts to master in Information Technology. The two terms are sometimes used interchangeably, so it is important to understand some key differences.

Computer memory needs to be quick. It is constantly feeding the CPU with data to process. Since nobody likes to wait for a computer, high-quality computers will have fast processors and lots of quick memory.

Computers do not normally process all the information they have at once. They also need to save some data for long term use. This is where storage comes in. Think of all the video files, mp3s, photos, documents, etc on your PC. These files are not always being processed by the CPU, they are mostly just hanging around waiting to be used at some point. Storage does need to be as quick as memory, but there does need to be a lot more of it. This is a key difference between memory and storage.

Because memory needs to be much faster than storage, it is rather more expensive than storage per KB. A typical desktop computer today (in 2009) typically has between 512 MB and 8 GB of memory running at speeds of anywhere from 300 MHz to 1.2 GHz.

Memory is almost always based on semiconductor technology. Examples of common computer memory include RAM, ROM, and VRAM. Memory is typically volatile in nature, meaning that it needs power in order to retain its state. There are exceptions however, such as EPROMs, which can retain their state even when the power is off.

Computer storage is typically cheaper, slower, and more plentiful than computer memory. Storage comes in many different types including magnetic storage, optical storage, and more recently semiconductor storage. Storage is typically non-volatile in nature, meaning that it retains its state even when the power is off. A typical computer today comes with anywhere between 50 GB and 1 TB of computer storage.

The most popular example today of magnetic storage is the hard disk drive. These devices use rotating, magnetically-charged platters to store data. Hard disk drives are popular because they can store a lot of data very reliably with relatively quick access times. Other examples of magnetic storage devices include the tape drive and diskette. Tape drives and diskettes are both good examples of legacy devices. It's unlikely they will even be made much past 2010.

Trends in computer storage are always changing. Now it looks as if traditional magnetic hard disk drives might eventually be replaced by SSDs or solid state drives. SSDs have many key advantages over magnetic storage including 1) no moving parts and 2) less power consumption. This makes them very good for laptops where battery life and overall durability can be big issues. If the technology continues to improve, we may even see them in desktop computers as well.

Optical storage is another technology strategy used in computer storage, and is particularly useful for sharing audio, video, and larger programs. Optical storage works by a laser burning or reading data off a plastic disc coated with various types of light sensitive material in it. Due to reliability and space limitations, optical storage is seldom used as a primary means of data storage. In case you don't understand what optical storage is, look no further than your CD-ROM, or DVD-ROM drive. Here are some optical storage solutions in action!

Okay now you know the difference between memory and storage. That wasn't so hard, was it?

4. Look through the text once again, find English equivalents to the following Russian words and word combinations and write them down.

1) обмен аудио, видео и большими программами - _____

2) употребляются как взаимозаменяемые _____

3) ключевые преимущества - _____

4) снабжать центральный процессор данными для обработки - _____

5) лазер, считывающий данные с пластикового диска - _____

6) долгосрочное использование - _____

7) покрытый светочувствительным материалом - _____

8) околачиваться поблизости - _____

9) надежность и пространственные ограничения - _____

10) энергонезависимый по природе - _____

11) магнитно-заряженные пластины - _____

12) меньшее энергопотребление - _____

13) надежность и быстрый доступ - _____

5. Write the following “tricky things” in letters:

2009 _____

50GB _____

1 TB _____

512 MB _____

8 GB _____

1.2 GHZ _____

300 MHZ _____

2010 _____

6. Finish the sentences translating the words in brackets.

- 1) EPROMs are popular for use in critical firmware applications, such as BIOS's, because they are both non-volatile and they (могут быть обновлены) _____ when necessary.
- 2) FI A hard disk drive can fail at any time, normally causing (уничтожение и потеря данных) _____.
- 3) Floppy disk drives (были когда –то встроены) _____ with almost all computers, but are now considered obsolete.
- 4) Magnetic drives have been around (с 1950-х) _____ and are typically used to store (большое количество) _____ of data.
- 5) Optical storage is a good choice for distributing software packages because it has a good mix of (размер памяти) _____, portability, and a low cost to manufacture.
- 6) My computer (медленно работал) _____ when changing programs, so my technician installed more RAM and this (решило проблему) _____.
- 7) The boy (удивленно посмотрел) _____ when the man showed him an old Atari 800 computer ROM cartridge.
- 8) All computers (созданные сегодня) _____ use at least some form of semiconductor storage.
- 9) Many new laptop models use solid-state drives, although they are more expensive and (имеют меньшую емкость) _____ than traditional hard disk drives.
- 10) The system administrator does a DVD-R (резервное копирование) _____ every week, because it's (дешевле и надежнее) _____ than using a tape drive.
- 11) Modern games such as Quake IV (загружают) _____ textures which can fill 512 megabytes of (отведенная) _____ video RAM.

7. Discussion Questions.

- 1) What is the difference between memory and storage?
- 2) How much memory does your computer have?
- 3) How much storage does your computer have?
- 4) What is meant above when the author says that volatile memory needs power in order to "retain its state"?
- 5) Do you think semi-conductor storage will ever completely replace magnetic storage? When and why?

UNIT 11

Input devices

1. You should study the following words and word combinations before reading the text. They will also be necessary for other tasks in this unit, don't ignore them.

Barcode reader	-	сканер штрих-кодов
Click	-	клик, указание мышью, щелчок кнопкой
Double-click	-	двойной клик
Fingerprint reader	-	сканер отпечатков пальцев
Graphics tablet	-	графический планшет
Input device	-	устройство ввода данных
Joystick	-	джойстик
Light pen	-	световое перо
Microphone	-	микрофон
Mouse	-	мышка
Mouse pointer	-	курсор мыши
OCR (optical character recognition)	-	оптическое распознавание знаков
Right click	-	клик правой кнопкой мыши
Speech recognition	-	распознавание речи
Stylus	-	стилус, сенсорный карандаш
Touchpad	-	сенсорная панель
Touch screen	-	сенсорный экран
Trackball	-	трекбол (шаровое устройство ввода данных)

2. Which word from the above list is being described? Fill in the blanks.

1) an input device with a vertical rod mounted on a base used to control pointing devices or on-screen objects; normally with one or more buttons - _____

2) the ability of a computer to convert spoken words from a user into usable data – _____

3) a hardware peripheral designed to 'scan' products into an inventory tracking system - _____

4) to depress and release the left mouse button twice in quick succession - _____

5) a device which forms a digitised image of a human finger print for the purpose of biometric authentication - _____

6) an input device or mouse alternative using a sensitive rectangular surface and a stylus - _____

7) to press and release the primary (left-side) mouse button - _____

- 8) an input device consisting of a sensitive rectangular area in which one uses a finger to move a cursor on a display - _____
- 9) any peripheral used primarily to enter data into a computer - _____
-
- 10) an input device using a light-sensitive pen shaped handle which can be used to draw on the computer screen - _____
- 11) a handheld input device used to move an onscreen pointer by means of sliding on a flat surface - _____
- 12) a special icon (normally an arrow) which indicates the current location of the mouse on the desktop screen - _____
- 13) the ability of a computer to determine standard letters and numbers based on fuzzy logic - _____
- 14) to press the right-side mouse button - _____
- 15) a hardware device plugged into a computer's sound card optimized for voice commands or other audio recording - _____
- 16) a pointing device consisting of a ball on top of a base that is rotated to move a cursor on the computer screen - _____
- 17) a part of an input device resembling a pen used to draw on the surface of a graphics tablet - _____
- 18) a display that also acts as an input device by allowing a user to navigate a program by pressing specific locations of the screen – _____
-

3. Read the text carefully trying to understand as much as possible and translate it.

We use input devices every time we use a computer. Simply speaking, it is these devices which allow us to enter information. Without them, the computer would not know what we want it to do.

Some of the things we do with input devices are: move a cursor around the screen, enter alphanumeric text, draw pictures, and even enter binary data in the form of graphics or audio wave forms.

Input devices have a history as long as computers themselves. Perhaps the first input device was the simple electronic switch (similar to a light switch) which turned bits on or off. There were hundreds or even thousands of these switches on larger computers. It used to take a team of programmers hours or even days to set up a computer to perform a single calculation.

Switches and jumpers are still used today on computers. For instance, the power button on the computer is a switch which is also an input device telling the computer to power on or power off. Tiny switches called jumpers are also widely used on motherboards to change important settings such as processor clock speed or memory speed.

Most likely in front of you right now are two of the most popular input devices: the keyboard and the mouse. And instead of a mouse on a laptop computer you normally have a touchpad.

As computers evolved throughout the late 20th century, computers became more and more interactive. Input devices came and went. Some lasted and some did not. The light pen and the joystick are almost unknown today, although they were popular before the mouse and the gamepad became well-known. Touch screens are already replacing keypads on mobile phones and may come to replace or augment keyboards and mice on PCs and laptops in the near future.

Different people prefer different input devices for doing the same task. For instance, many graphic artists prefer to use a stylus and graphics tablet rather than a mouse. It might offer them a greater deal of artistic freedom, or precision while performing their work.

Sufferers of carpal tunnel syndrome often prefer a trackball or stylus to a mouse. Handicapped computer users have invented a wide array of input devices designed to replace the mouse including devices controlled by foot or even eye movement.

Not only PCs and mainframes use input devices. Almost all computers feature some kind of input device. Special scanners are used in many stores and warehouses called barcode readers to enter stock and sell items at the cashier. These are input devices as well. Even microphones can technically be called input devices as a computer can respond to them and interpret them as incoming data.

Corporations and especially government institutions are already implementing the second generation of input devices to improve security. These include retina scanners and/or fingerprint readers to replace or improve accuracy of username and password authentication. You will be seeing more of this kind of biometric authentication in the coming years as a general remedy for weak passwords or leaked passwords.

In summary, input devices are how you interact with a computer. The computer responds to your input and hopefully does what you need it to do. It seems really simple, and that's the way it was meant to be!

4. Look through the text once again, find English equivalents to the following Russian words and word combinations and write them down.

- 1) вводить информацию – _____
- 2) буквенно-цифровой текст – _____
- 3) выключатель света – _____
- 4) отвечает на ваши входные данные – _____
- 5) настроить компьютер для выполнения одного вычисления – _____
- 6) улучшить безопасность - _____
- 7) кнопка включения - _____
- 8) сканер сетчатки глаза - _____
- 9) биометрическая авторизация - _____
- 10) скорость частоты процессора - _____
- 11) общее средство защиты против утечки паролей - _____

- 12) изменить настройки - _____
- 13) эволюционировали на протяжении конца 20 века - _____
- _____
- 14) вводить данные о товарах на складе и продавать их на кассе - _____
- _____
- 15) клавиши на мобильном телефоне - _____
- 16) интерпретировать их как входные данные - _____
- 17) точность при выполнении работы - _____

5. Complete these sentences with the correct form of the words at the end of the sentence.

- 1) Harry ran into trouble while taking _____ *invent*
because he forgot to charge his barcode reader.
- 2) The Macintosh _____ did not know that in order *use*
to open a file in Windows you need to double-click it.
- 3) The security firm was so tired of people choosing weak *read*
passwords that they installed fingerprint _____
to increase the security of their systems.
- 4) The graphic designer sometimes used a graphics *add*
tablet in _____ to a mouse.
- 5) The mouse and the keyboard are two *put*
examples of common _____ devices.
- 6) The man used a joystick to control the airplane *simulate*
in the flight _____.
- 7) Before the mouse became available, some older *active*
computers used light pens to increase _____.
- 8) Before the _____ of the mouse, the 'tab key' *invent*
or 'arrow keys' were often used to navigate the screen.
- 9) The mouse pointer changes its shape at times, depending on *apply*
the _____ being run and the task
being performed.
- 10) Instead of _____ the stack of documents, *type*
the secretary decided to use OCR technology to scan them.

- 11) Windows 95 was the first major operating system to _____ the right-click. *popular*
- 12) The new phone system used speech recognition to help reduce the number of customer service _____. *represent*
- 13) The man lost his stylus and thus could no longer enter text on his PDA until he _____ it. *place*
- 14) Laptops commonly include a _____ touchpad in addition to supporting a mouse. *build*
- 15) Most _____ kiosks in airports make use of touchscreens instead of keyboards or mice. *inform*
- 16) The _____ person used a trackball instead of a mouse to move the cursor. *injure*

6. Discussion Questions.

- 1) What input device do you use most often and why?
- 2) Would you agree to change your touchscreen mobile phone for the one with the keypad? Explain your decision.
- 3) What input devices will people use in the future? What will stop to exist in our everyday life?

7. Essay Practice.

We live in the age of computer technologies and constant innovations. Every day a new device appears and makes our life easier and more comfortable. Can you say that our reality is digital in comparison with the previous centuries? Express your opinion using the clichés from Appendix 1.

I HOPE YOU'VE ENJOYED THIS WORK ☺

APPENDIX 1

Essay Clichés

To begin with,	Начнем с того, что
You can	Вы можете (Можно)
Firstly, ... / Secondly, ... / Finally,	Во-первых, ... / Во-вторых, .../ Наконец,
One argument in support of ...	Один из аргументов в поддержку
The first thing that needs to be said is	Первое, что нужно сказать, это то, что (Прежде всего, следует сказать, что)
First and foremost	В первую очередь
It is true that ... / clear that ... / noticeable that	Это правда, что ... / Ясно, что ... / Примечательно, что ...
One should note here that	Здесь следует отметить, что
Another good thing about ... is that	Еще один положительный момент ... заключается в (том, что)
The second reason for	Вторая причина
It is often said that	Часто говорят, что
It is undeniable that...	Нельзя отрицать, что
It is a well-known fact that	Хорошо известно, что
For the great majority of people	Для подавляющего большинства людей
We live in a world in which	Мы живем в мире, в котором
A number of key issues arise from the statement. For instance,	Это утверждение затрагивает ряд ключевых вопросов. Например,
One of the most striking features of this problem is	Один из самых поразительных аспектов этой проблемы

First of all, let us try to understand	Прежде всего, давайте попытаемся понять
The public in general tend to believe that	Общественность в целом склонна полагать, что
What is more,	Более того,
Besides, ... because it is	Кроме того, ... потому что
Doubtless,	Несомненно,
One cannot deny that	Нельзя отрицать, что
It is (very) clear from these observations that	Из этих наблюдений (абсолютно) ясно, что
On the other hand, we can observe that	С другой стороны, мы можем наблюдать, что
The other side of the coin is, however, that	Однако, с другой стороны,
Another way of looking at this question is to	Чтобы взглянуть на эту проблему с другой стороны, надо
One should, nevertheless, consider the problem from another angle.	Тем не менее, следует взглянуть на эту проблему с другой стороны.
One should, however, not forget that	Тем не менее, не следует забывать, что
If on the one hand it can be said that ... the same is not true for	И если с одной стороны, можно сказать, что ... , то же самое нельзя сказать о
On the other hand,	С другой стороны,
Although	Хотя
Besides,	Кроме того,
Moreover,	Более того,
Furthermore, one should not forget that	Кроме того, не следует забывать, что
In addition to	Кроме (того, что)

Nevertheless, one should accept that	Тем не менее, следует признать, что
However, we also agree that	Однако, мы также согласны с тем, что
Experts...	Эксперты ...
... believe that считают, что
... say that говорят, что
... suggest that предполагают, что
... are convinced that убеждены, что
... point out that отмечают, что
... emphasize that подчеркивают, что
According to some experts...	По мнению некоторых экспертов,
Perhaps we should also point out the fact that	Возможно, нам также следует отметить тот факт, что
It would be unfair not to mention that fact that	Было бы несправедливо не упомянуть тот факт, что
One must admit that	Надо признать, что
We cannot ignore the fact that	Мы не можем игнорировать тот факт, что
One cannot possibly accept the fact that	Трудно смириться с тем фактом, что
From these facts, one may conclude that	Из этих фактов, можно сделать вывод (о том), что
Which seems to confirm the idea that	Что, по-видимому, подтверждает мысль (о том), что
Thus, ... / Therefore,...	Таким образом, ... / Поэтому
The most common argument against this is that	Наиболее распространенным аргументом против этого является то, что
In conclusion, I can say that although ... ,	В заключение я могу сказать, что, хотя ... ,

To draw the conclusion, one can say that

Подводя итог, можно сказать, что

So it's up to everybody to decide whether ... or not.

Так что каждый должен решить для себя ... ли ... , или нет.

The arguments we have presented ... suggest that ... / prove that ... / would indicate that

Представленные нами аргументы ... предполагают, что ... / доказывают, что ... / указывают на то, что

From these arguments one must ... / could... / might ... conclude that

Исходя из этих аргументов, надо ... / можно ... / можно было бы ... прийти к заключению о том, что

APPENDIX 2

KEYBOARD VOCABULARY

& (ampersand)

* (asterisk)

@ (at sign)

\ (back slash)

{ } brackets

Case

/ (forward slash)

> (greater than sign)

< (less than sign)

- (minus sign)

() parentheses

% (percent sign)

+ (plus sign)

[] square brackets

~ (tilde)

_ (underscore)

Alt (alternate key)

arrow keys

caps lock key

^ (caret key)

Ctrl (control key)

Del (delete key)

F (function key)

(hash key)

Pr Scr (print screen key)

Учебное издание

Составитель:
Бань Оксана Васильевна

DIGITAL REALITY

Пособие по английскому языку
для аудиторной и внеаудиторной самостоятельной работы
для студентов дневной формы обучения специальностей
1-40 03 01 "Искусственный интеллект" и
1-53 01 02 "Автоматизированные системы обработки
информации"

Ответственный за выпуск: Бань О.В.
Редактор: Боровикова Е.А.
Компьютерная вёрстка: Боровикова Е.А.
Корректор: Бань О.В.

Подписано к печати 9.07.2015 г. Бумага «Снегурочка». Формат 60x84 ¹/₈.
Гарнитура Times New Roman. Усл. печ. л. 7,44. Уч. изд. л. 8,0.
Заказ № 670. Доп. тираж 30 экз. Отпечатано на ризографе Учреждения
образования «Брестский государственный технический университет»
224017, г. Брест, ул. Московская, 267.



Digital Reality



