

**О. А. ГЛИВЕНКОВА, Е. В. ЕВЕНКО,  
В. И. КОПЕЛЬНИК**

# **АНГЛИЙСКИЙ ЯЗЫК ДЛЯ ИТ-СПЕЦИАЛИСТОВ**



**Тамбов  
Издательский центр ФГБОУ ВО «ТГТУ»  
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# **АНГЛИЙСКИЙ ЯЗЫК ДЛЯ ИТ-СПЕЦИАЛИСТОВ**

Утверждено Ученым советом университета в качестве учебного пособия  
для студентов 1 курса направления подготовки 09.03.01.01 «Модели,  
методы и программное обеспечение анализа проектных решений»

*Учебное электронное мультимедийное издание*



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Рецензенты:

Кандидат филологических наук, доцент кафедры  
«Русская филология» ФГБОУ ВО «ТГТУ»  
*М. М. Глазкова*

Кандидат филологических наук, доцент кафедры  
«Русский язык как иностранный»  
ФГБОУ ВО «ТГУ им. Г. Р. Державина»  
*В. В. Зайцева*

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Состоит из шести разделов (Units), снабженных как практическим, так и справочным материалом, а также задания на формирование и закрепление основных умений и навыков – чтения, письма, аудирования и говорения на английском языке. Каждый урок содержит несколько разделов, которые рассматривают многочисленные аспекты английского языка. Используемые практические задания направлены на развитие умения извлекать профессионально важную информацию из представленных текстов на английском языке, а также закрепить грамматический и лексический материал.

Предназначено для студентов 1 курса, направления подготовки 09.03.01.01 «Модели, методы и программное обеспечение анализа проектных решений»

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## INTRODUCTION

Данное учебное издание ориентировано на ознакомление с профессиональным английским языком студентов-бакалавров по направлению подготовки 09.03.01.01 «Модели, методы и программное обеспечение анализа проектных решений»

Цель пособия: обучение иноязычному устному и письменному дискурсу и формирование навыков профессиональной коммуникации, с включением стереотипов мышления и поведения в профессиональном сообществе.

В пособии решаются следующие задачи:

- расширение лексического запаса студентов;
- закрепление и активизация грамматического материала;
- развитие умений и навыков различных видов чтения;
- формирование умений и навыков говорения и аудирования.

В пособии акцентируются как общекультурные, так и профессиональные компетенции.

Под **общекультурными компетенциями** подразумеваются:

- способности обучаемых к совершенствованию и развитию интеллектуального и общекультурного уровней, а также к самостоятельному овладению современными исследовательскими методами и методиками;
- способности к практическому использованию иностранного (английского) языка как эффективного способа деловой коммуникации, включающей базовую и специальную лексику, основной терминологический инструментарий изучаемой специальности; к овладению в достаточном для профессиональной коммуникации объеме навыков устной и письменной речи, к формулированию проблем и путей их решений, к аргументации излагаемых выводов;
- умения конструирования и реферирования профессиональных текстов, включая анализ, логичность и четкость изложения;
- способности к достижению профессиональных успехов;
- готовность к продуктивной коммуникации как в производственной и социально-общественной, так и в научной сферах;
- способности к социальной и языковой мобильности;
- способности к самостоятельной работе с различными информационными источниками в целях получения новых знаний;

- владение навыками перевода текстов обыденного и профессионально ориентированного содержания, средствами коммуникация с зарубежными коллегами;
- способности к творческой адаптации к конкретным условиям выполняемых задач и их инновационным решениям.
- способности адаптироваться к новым ситуациям, переоценке накопленного опыта, анализу своих возможностей; навыки публичных деловых и научных коммуникаций;
- способности к дифференциации этнических особенностей и, лингвокультурных традиций; к возможному погружению в условия межкультурного пространства;
- способности к выполнению профессиональных обязанностей на международном уровне.

Под **профессиональными компетенциями** подразумеваются:

- способности к адекватному восприятию и пониманию основных задач выбранной предметной области с использованием соответствующих методов и методик их решения;
- способности к самостоятельности в приобретении и практическом пользовании новых знаний и умений, включая передовые технологии, непосредственно не связанные со сферой деятельности;
- способности к осуществлению выборки и анализа информационных сообщений относительно отечественного и зарубежного опыта по выбранной теме исследования;
- способности к работе в многонациональных производственных коллективах, к разработке междисциплинарных и инновационных проектов, с использованием атмосферы делового сотрудничества;
- способности к представлению (опубликованию) результатов научного исследования на конференции или в печатном издании, в том числе на иностранном (английском) языке;
- способности к организации и проведению переговоров с представителями заказчика и профессиональные консультации на предприятиях и в организациях.

Указанные цели, задачи и перечисленные компетенции определяют структуру настоящего пособия, состоящего из четырех разделов (Units) и приложений. Каждый раздел включает в себя следующие аспекты: Starting up, Vocabulary, Reading, Language Focus, Listening, Speaking, Writing.

## UNIT 1

### INTRODUCTION TO INFORMATION TECHNOLOGY

“The digital revolution is far more significant than the invention of writing or even of printing.”

Douglas Carl Engelbart

#### Lead-in Activity

- 1 Discuss the quote.
- 2 What does IT deal with?
- 3 Which industries are associated with IT?
- 4 How has IT influenced the different areas of life?
- 5 How do you think developments in IT will affect work, commerce, the relationship between humans and computers and the other areas of life in the next few years?

#### Text

Information technology or Information and Communication Technology (hereinafter referred to as IT or just IT) is a broad subject concerned with technology and other aspects of managing and processing information, especially in large organizations. In particular, IT deals with the use of computers and telecommunications equipment to convert, store, protect, process, transmit and retrieve information. The term IT is commonly used as a synonym for computers and computer networks, but it also encompasses other information distribution technologies such as television and telephones. Several industries are associated with information technology, including computer hardware, software, electronics, semiconductors, Internet, telecom equipment, e-commerce and computer services. For that reason, computer professionals are often called IT specialists and the division of a company or university that deals with software technology is often called the IT department.

Information technology was formally integrated into the school curriculum in the 1980s. With the arrival of the Internet and the broadband connections to all schools, the application of IT knowledge, skills and understanding in all subjects became a reality.

The potential and capabilities of modern IT systems are still growing exponentially fuelled by the progress in electronics, microsystems, networking, the ability to master increasingly complex cyber-physical systems and robots, and progress in data processing and human-machine interfaces. These developments provide major opportunities to develop the next generation of open platforms on top of which a multiplicity of innovative devices, systems and applications can be implemented.

#### Vocabulary Practice

**Task 1: Match the definitions 1 – 6 to the verbs A – F.**

- 1 ..... organize and manipulate data, usually large amounts of numeric data
- 2 ..... find and bring back information
- 3 ..... keep information safe from loss
- 4 ..... change data from one format to another
- 5 ..... copy data from a CPU to memory, or from memory to a mass storage device
- 6 ..... pass information from one place to another
- A convert B store C protect D process E transmit F retrieve

**Task 2: Find the words in the text according to these definitions.**

- 1 ..... any of various solid crystalline substances used especially as a base material for computer chips and other electronic devices
- 2 ..... technology of very small devices made of silicon or polymer which perform non-electronic functions such as typically sensing and actuation
- 3 ..... a specialized functional area within an organization where experts in electronic communications of all kinds work
- 4 ..... business transactions conducted on the Internet
- 5 ..... grouping of two or more computer systems linked together
- 6 ..... the science dealing with the development and application of devices involving flow of electrons in a vacuum, gaseous media and semiconductors
- 7 ..... boundaries across which two independent systems meet and act on or communicate with each other

**Reading**

**Peter Wilson .....**

The world is now plugged in, and countries are connected up using a mixture of terrestrial networks, undersea cables, satellite and microwave communications, Wi-Max and Wi-Fi, GSM and 3G. The move from packet-based services to the Internet protocol means everyone expects to communicate voice, data and video from anywhere to anywhere, globally. The availability of wide area data services such as MPLS and Ethernet have spread all over the world, allowing companies to manage and communicate with their operations wherever they may be. A reason for this has been the fall in bandwidth costs, and broadband is getting cheaper and cheaper. Services can now deliver tens or even hundreds of megabits of bandwidth into individual homes for much less money than a 84Kb line that a whole factory might have used to run its operation only a few years ago.



**JennyLane .....**

In 1965 Gordon Moore stated that the number of transistors on a chip would double about every two years. And that has more or less remained true since then. As we write, a single chip can hold about 1 billion transistors each making 3 billion binary calculations per second. There has been a huge increase in the volume of data and data storage capacity required for this; secondly, there has been a significant decrease in the size and power consumption of hardware and finally manufacturing costs are falling significantly. The result is that there are more and more powerful computers in our lives, and even handheld devices can store gigabytes of data holding thousands of MP3 music files or hundreds of films.

**Sanjay Ravi .....**

The internet is changing the way we access, buy and use applications. We go online and download the software we want onto our computer, like any other digital product. Increasingly we don't even have the software on our hardware but visit an internet site and use that application as a service. The use of this Software as a Service (SaaS) model means that we may not need such powerful computers in the future. We have seen the impact of off-shoring and the rise of India as the world centre of software development and application management. We are also seeing some of the smartest applications and services coming out of people's bedrooms; more and more experts are producing Open source software, which is becoming more and more popular, creating a real threat to the big corporations.

**Task 1: Read the magazine article about trends in IT. Match the industry leader to their area of expertise.**

- A software
- B telecoms
- C hardware

**Task 2: Say if the following statements are true (T) or false (F) according to the text.**

According to Peter Wilson:

- 1 ..... most countries are connected up with undersea cables.
- 2 ..... many countries have unreliable mobile phone networks.
- 3 ..... recently bandwidth costs have risen dramatically.

According to Jenny Lane:

- 4 ..... Moore's predictions have been fairly accurate.
- 5 ..... a typical chip can now hold 3 billion transistors.
- 6 ..... both data storage capacity and power consumption have gone up.

According to Sanjay Ravi:

7 ..... fewer people are going to computer stores to buy software.

8 ..... SaaS will require ordinary users to have more powerful computers.

9 ..... software development needs the support of a big corporation to succeed.

**Language Functions: Predicting**

We can use different expressions to talk about how sure we are that something will happen in the future.

100%	will definitely	<i>be sure to, be bound to, be certain to</i>
75%	will probably	<i>be likely to, there's a good chance that</i>
50%	will possibly	<i>may, might, could</i>
25%	probably won't	<i>be unlikely to</i>
0%	definitely won't	<i>there's no chance that</i>

Example: *The mouse is bound to disappear in the next few years.*

**Speaking**

**2 Work with a partner. You each have some predictions about two more areas of technology. Make predictions and show how sure you are about them.**

**Student A:** You are an expert in the field of Artificial Intelligence. Tell your partner about your predictions in your field. You are very certain about your predictions in the near future but less certain about predictions in the more distant future.

- AI entitles given basic 'human' rights – 2025
- Computers more intelligent than humans – 2030
- AI graduates from the University – 2040
- Living genetically engineered teddy bear – 2045
- Robot team beats England football team – 2050

**Student B:** You are an expert in the field of Biotechnology. Tell your partner about your predictions in your field. You are very certain about your predictions in the near future but less certain about predictions in the more distant future.

- Microchip implants obligatory for everybody – 2025
- Artificial brain implemented – 2030
- Nano devices implanted in blood – 2040
- Robots replace surgeons in all hospitals – 2045
- Virus crosses from machines to humans – 2050

## UNIT 1 WORDLIST

3G [θri:dʒi:]	сеть мобильной связи третьего поколения
bandwidth ['bændwɪðθ]	производительность; пропускная способность; полоса (частот)
barcode [bɑ:'kəʊd]	штрих-код
biometric scanner [baɪə(ə)'metrɪk 'skænə]	биометрический сканер
broadband ['brɔ:dbænd]	широкополосный
compute [kəm'pjʊ:t]	вычислять
contact lens ['kɒntækt lens]	контактная линза
convergence [kən'vɜ:dʒəns]	конвергенция
convert [kən'vɜ:t]	преобразовать
cyber-physical system ['saɪbə 'fɪzɪk(ə)l 'sɪstəm]	киберфизическая система
data processing ['deɪtə 'prəʊsesɪŋ]	обработка информации; обработка данных
device [dɪ'vaɪs]	устройство
distribution technology [dɪstrɪ'bju:ʃ(ə)n tek'nɒlədʒi]	технология распределения
e-commerce [i:'kɒmɜ:s]	электронная коммерция
electronics [ɪlek'trɒnɪks]	электроника
encompass [ɪn'kʌmpəs]	охватывать
entity ['entɪti]	элемент предметной области базы данных; модуль
hardware ['hɑ:dweə]	аппаратное оборудование (в отличие от программного); технические средства (обработки данных)
human-machine interface ['hju:mən mə'ʃi:n 'ɪntəfeɪs]	интерфейс "человек-машина"
implement ['ɪmplɪment]	реализовать
implementation [ɪmplɪmen'teɪʃ(ə)n]	ввод в работу (напр., ЭВМ); ввод; разработка
information and communication technology [ɪnfə'meɪʃ(ə)n ænd kəmju:nɪ'keɪʃ(ə)n tek'nɒlədʒi]	информационно- коммуникационная технология
IT specialist [aɪ'ti:'speʃəlist]	специалист в области IT
IT department [aɪ'ti:	отдел информационных

di'pɑ:tɪm(ə)nt]	технологий
manipulate [mə'nɪpjəleɪt]	манипулировать
market share [mɑ:kɪt 'feə]	доля рынка
microsystems ['mɪkrəʊ'sɪstəmz]	микросистемы
multiplicity [mʌltɪ'plɪsɪti]	множественность
networking ['netwɜ:kɪŋ]	сеть
off-shoring [ɒf'ʃɔ:rɪŋ]	офшоринг
platform ['plætfɔ:m]	платформа
process [prə'ses]	процесс
protect [prə'tekt]	защищать
radio-frequency identification (RFID) ['reɪdɪəʊ 'fri:kw(ə)nsɪ aɪdentɪfɪ'keɪʃ(ə)n; ɑ:efar'di:]	определители частоты радиосигнала
retrieve [rɪ'tri:v]	получить
semiconductor [semɪkən'dʌktə]	полупроводник
software ['sɒf(t)weə]	программное обеспечение
Software as a Service (SaaS) ['sɒf(t)weə əz ə 'sɜ:vɪs; sas]	программное обеспечение как услуга
store [stɔ:]	фиксировать (данные)
surveillance [sə'veɪl(ə)ns]	подтверждения права доступа
telecom equipment ['telɪkɒm ɪ'kwɪpm(ə)nt]	телекоммуникационное оборудование
terrestrial network [tə'restriəl 'netwɜ:k]	глобальная сеть
transmit [trænz'mɪt]	передавать

**UNIT 2**  
**A CAREER IN INFORMATION TECHNOLOGY**

“Why join the navy if you can be a pirate?”

Steve Jobs

**Lead-in Activity**

- 1 Discuss the quote.
- 2 Why are careers in the IT field in high demand?
- 3 What do IT professionals do?
- 4 What skills must an IT professional have?
- 5 What field(s) of IT are you interested in and why?

**Text**

The IT industry is one of the fastest growing and changing fields. Technology is developing rapidly, and new devices and systems are constantly being created to provide faster and more efficient methods for information and communication technology. Careers in the IT field are in high demand and the industry is expected to grow. Professionals in IT careers may work in commercial service sectors and IT companies.

Careers in information and communication technology fields include a variety of roles and tasks associated with planning, research, installing, maintenance and monitoring the performance of IT systems and transmissions. Specialists typically focus on a specific computer network, database, or systems administration function.

There are the following careers in IT:

1 .....

**Manages** projects, technology and people. **Takes responsibility** for the maintenance of servers and installation of new software, and for **staffing** a **helpdesk** and a support group. Is responsible for developing and implementing computer software that supports the operations of the business. Is responsible for multiple development projects and **oversees** the implementation and support of the system. Has to take responsibility for budgets and for staff.

2 .....

**Studies** methods of working within an organization to decide how tasks can be done efficiently by computers. **Makes** a detailed **analysis** of the employer’s requirements and work patterns to prepare a report on different options for using information technology. This may involve consideration of hardware as well as software. Either uses standard computer **packages** or writes a **specification** for programmers to **adapt** existing software or to **prepare** new software. May **oversee** the implementation and testing of a system and acts as a link between the user and the programmer.

3 .....

**Maintains** the link between PCs and workstations connected in a network. Uses telecommunications, software and electronic skills, and knowledge of the networking software to **locate** and **connect** faults. This may involve work with the **controlling** software, on the wiring, printed circuit boards, software or microchips on a file server, or on cables either within or outside the building.

4 .....

**Researches, designs, and develops** computers, or parts of computers and the computerized element of appliances, machines, and vehicles. Also involved in their **manufacture, installation, and testing**. May specialize in different areas: research and development, design, manufacturing. Has to be aware of cost, efficiency, safety, environmental factors, as well as engineering aspects.

5 .....

**Produces** the programs which control the internal operations of computers. **Converts** the system analyst's specification to a logical series of steps. **Translates** these into the appropriate computer language. Often **compiles** programs from libraries or subprograms, combining these to make up a complete system program. **Designs, tests and improves** programs for computer-aided design and manufacture, business applications, computer networks and games.

6 .....

**Advises** potential customers about available hardware and **sells** equipment to suit individual requirements. **Discusses** computing needs with client to ensure that a suitable system can be supplied. **Organizes** the sale and delivery and, if necessary, installation and testing. May **arrange** support or training, maintenance and consultation. Must have sufficient technical knowledge.

7 .....

Is an analyst programmer who is responsible for maintaining updating and modifying the software used by a company. Some specialize in software which **handles** the basic operation of the computers. This involves the use of machine codes and specialized low-level computer languages. Most handle applications software. May **sort out** problems encountered by users. Solving problems may involve **amending** an area of code in the software, **retrieving** files and data lost when a system crashes, and a basic knowledge of hardware.

8 .....

Can be responsible for installation, maintenance or repair of computers and associated equipment. **Installs** hardware, ranging from personal computers to mainframe machines, and tests by running special software. Some technicians **carry out** routine servicing of large mainframe systems, aiming to avoid breakdowns. Others are called to **identify** and **repair** faults as quickly as

possible usually by replacing faulty parts. Work can also involve upgrading machines usually on customers' premises.

9 .....

**Writes** the programs which enable computer to carry out particular tasks. May write new programs or **adapt** existing programs, perhaps altering computer packages to meet the needs of an individual company. When writing a new program, follows a specification provided by a system analyst. **Devises** a series of logical steps and converts these to the appropriate computer language. **Checks** programs for faults and does extensive testing.

10 .....

**Tests** the security of networks systems and **advises** customers how to introduce and maintain security policies including setting up secure password systems, installing firewalls, keeping out hackers and dealing with viruses.

**Match these different types of IT jobs A – J with the descriptions 1 – 10 in the text.**

- A Applications Programmer
- B Software Engineer/Software Designer
- C Computer Salesperson
- D System Analyst
- E IT Manager
- F Security Specialist
- G Hardware Engineer/Hardware Architect
- H System Support Person/System Administrator
- I Network Support Person/Network Engineer
- J Computer Services Engineering Technician

### **Vocabulary Practice**

**Complete the definitions with the verbs used in the text.**

- 1 ..... – do and complete a task
- 2 ..... – invent something new or a new way of doing something
- 3 ..... – find or discover something
- 4 ..... – to change something slightly in order to correct a mistake or to improve it
- 5 ..... – find the exact position of something
- 6 ..... – put a new program onto a computer
- 7 ..... – change something in order to make it suitable for a new use or situation
- 8 ..... – translate instructions from one computer language into another so that a particular computer can understand them

9 ..... – deal with and control

10 ..... – change something from one system to another.

### Speaking 1

**Task 1: Look at the picture and discuss what the picture shows. What do the individual parts of the picture represent and why?**



**Task 2: Could the picture be associated with other IT professions? What parts of the picture would you change and why?**

### Speaking 2

**Work in pairs, A and B. Choose one of the computing careers from the list provided. Your partner must find out what your job is by asking only Yes/No questions. He/She should ask at least five questions.**

Student A:	Student B:
IT Manager	Software Engineer



System Analysts Network Engineer Hardware Engineer	Computer Salesperson System Support Person Applications Programmer
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### Reading

Read the advertisement for a position at Golden Prairie Publishing and choose the correct answers.

#### ***TOP-QUALITY RECRUITS***

#### ***InDesign Studio Publishing Now hiring: Desktop Publishing Specialist***

Golden Prairie Publishing is hiring a Desktop Publishing Specialist. Qualifications/Skills must include:

- 2+ years work in the field. Position requires college degree.
- Experience with desktop publishing software.
- A background in graphic communications and design.
- Skills to create electronic pages for print.
- Using text and clip art to make expert page layouts.
- Planning skills. Ability to turn a first sketch into a comprehensive

layout.

Familiarity with offset lithography or electrostatic printing methods, but not essential as full training will be given.

To apply, send a cover letter and résumé to [hrexec@gldprairiepublishing.com](mailto:hrexec@gldprairiepublishing.com)

#### **1 The purpose of this advertisement is**

- A to post a job opening
- B to describe a company
- C to start a publishing company
- D to sell a desktop publishing program

#### **2 A job qualification is NOT**

- A the ability to make clip art
- B project planning skills
- C a college education
- D the ability to make layouts

### **3 What can you infer from this advertisement?**

- A The job pays well.
- B This is a managerial position.
- C The company is hiring from within.
- D Students do not meet the requirements.

### **Language functions: A Job Interview**

#### **Possible questions a candidate for a job can expect in a job interview:**

- Small talk to begin
- Did you have any trouble finding us?
- Did you find a parking space around here?
- How are you enjoying this hot weather/snow/etc.?

#### **Standard interview questions**

- Tell us something about yourself.
- What university do/did you attend and why did you choose it?
- Why did you choose to study information technology?
- What do you know about our company?
- Why would you like to work here?
- Who would you consider to be our main competitors?
- What attracted you to this particular position?
- What do you see as your strengths? How do your skills and experience match the job requirements?
- What skills have you developed at university/in your current job?
- What languages can you speak?
- What do you like doing in your spare time?

#### **More difficult questions**

- What do/did you dislike about university/your current job?
- How would you describe the way you work? Would you describe yourself as an ambitious person?
- What are your weaknesses?
- What skills do you think you need to improve?
- Where do you see yourself in five years' time?
- Tell me about a time when you experienced pressure, at university or at work.
- Tell me about a time you had to make a difficult decision.
- Tell me about a time when you played an important role in a team.

#### **Possible questions a candidate for a job can ask in a job interview: Questions about the job**

Can you tell me exactly what I would be expected to do if I were hired for this position?

What's the most important thing I can accomplish in the first three months?

Is there an employee performance review process?

How often does that occur and can you walk me through a typical one?

Is there anything else I can provide you with that would be helpful or questions I can answer?

**Questions about the company**

What exactly does this company value the most, and how do you think my work for you will further these values?

Can you tell me what the career paths are for this department and what sort of advancements I could work towards?

Can you tell me about the team I'll be working with? Do you offer continuing education and professional training?

What can you tell me about your new products or plans for growth?

**Task 1: Have you ever attended a job interview? What was it like? What were the most difficult questions you were asked?**

**Task 2: Problem-solving.**

**Work in pairs. Study these job requirements 1 – 6 and try to match them to the list of jobs A – F which follows.**

1	2	3
<ul style="list-style-type: none"> <li>• at least 5 years (2 at senior level) in: Unix, Sybase or Oracle, Windows server 2012/16, Terminal Server, TCP/IP, Internet.</li> <li>• strong project management (2 years)</li> <li>• willingness to travel abroad</li> </ul>	<ul style="list-style-type: none"> <li>• able to manage, lead and develop a team</li> <li>• knowledge of C, C++, Delphi</li> <li>• experience of object-oriented design within a commercial environment</li> <li>• ability to deliver software projects against agreed schedules and within agreed estimates</li> </ul>	<ul style="list-style-type: none"> <li>• proven track record in the delivery of e-solutions in banking environment</li> <li>• knowledge of Unix, NT and Oracle</li> <li>• willingness to travel internationally</li> </ul>
4	5	6
<ul style="list-style-type: none"> <li>• minimum 4 years lifecycle development</li> </ul>	<ul style="list-style-type: none"> <li>• minimum of 18 months commercial</li> </ul>	<ul style="list-style-type: none"> <li>• experience of NT, Exchange, SQL Server,</li> </ul>

<ul style="list-style-type: none"> <li>experience demonstrable skills using VB, SQL, RDBMS</li> <li>able to develop core s/w</li> <li>excellent communication skills</li> </ul>	<ul style="list-style-type: none"> <li>experience of Web development</li> <li>knowledge of HTML, Java, ASP</li> <li>full portfolio of URLs as examples</li> </ul>	<ul style="list-style-type: none"> <li>Monitoring Software, Verta, TCP/IP</li> <li>solid grasp of networking</li> <li>2 to 5 years' experience in a network environment</li> </ul>
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**A ..... Visual Basic Developer**

**B ..... IT Engineer (Network & Database)**

**C ..... Web Developer**

**D ..... Network Support**

**E ..... E-commerce Consultant**

**F ..... Team Leader**

### Speaking 3

**Task 1: Role-play a job interview between an interviewer and a candidate for one of the jobs from the previous exercise. Ask some questions from the section Language Functions: A Job Interview.**

Student A: You are an interviewer. Ask at least ten questions.

Student B: Choose one of the jobs and answer the interviewer's questions. Ask at least two questions.

### Task 2:

If you were an interviewer, give three reasons why you selected the candidate for the position.

If you were a candidate, determine the two most difficult questions you were asked and give reasons why it was difficult to answer them.

## UNIT 2 WORDLIST

adapt [ə'dæpt]	адаптировать
amend [ə'mend]	улучшить; исправить
applications programmer [æpli'keɪf(ə)nz 'prəʊgræmə]	программист, специализирующийся на прикладных программах
Application Service Provider (ASP)[æpli'keɪf(ə)n 'sɜ:vɪs prə'vaɪdə; eɪ es'pi:]	поставщик услуг доступа к приложениям или провайдер приложений
arrange [ə'reɪn(d)ʒ]	приводить в порядок;

	классифицировать
blog administrator [blɒg əd'mɪnɪstreɪtə]	администратор блога
carry out ['kæriəʊt]	выполнять
clip art [klɪp ɑ:t]	иллюстративная вставка; фрагмент изображения; иллюстрация; картинка Clipart; графический элемент
compile [kəm'paɪl]	компилировать
computer salesperson [kəm'pjʊ:tə 'seɪlspɜ:s(ə)n]	продавец компьютеров
computer security specialist [kəm'pjʊ:tə sɪ'kjʊərtɪ'speʃ(ə)lɪst]	специалист по компьютерной безопасности
computer services engineering technician [kəm'pjʊ:tə 'sɜ:vɪsɪz endʒɪ'nɪərɪŋ tek'nɪʃ(ə)n]	инженер по компьютерным услугам
Delphi ['delfɪ], ['delfaɪ]	язык программирования Delphi
design [dɪ'zaɪn]	дизайн
develop [dɪ'veləp]	развивать
devise [dɪ'veɪz]	разработать
desktop publishing (DTP) ['desktpɒp 'pʌblɪʃɪŋ]	настольная редакционно- издательская система; настольная издательская система
DTP operator [di:ti:'pi: 'ɒpəreɪtə]	Оператор DTP
e-commerce developer [i:'kɒmɜ:s dɪ'veləpə]	разработчик электронной коммерции
estimates ['estɪməts]	оценки
Exchange/Microsoft Exchange Server ['maɪkroʊsɒft ɪks'tʃeɪndʒ 'sɜ:və]	сервер информационного обмена корпорации Майкрософт
handle ['hænd(ə)l]	обработать (предварительно); манипулировать
hardware engineer/architect ['hɑ:dweə endʒɪ'nɪə/'ɑ:kɪtekt]	специалист по ЭВМ; электронщик
help desk/helpdesk technician ['helpdesk tek'nɪʃ(ə)n]	сетевой администратор/инженер/специалист службы поддержки
identify [aɪ'dentɪfaɪ]	отождествлять; устанавливать тождество; определять; опознавать; устанавливать личность
install [ɪn'stɔ:l]	вводить в действие; развёртывать; устанавливать программное обеспечение

IT manager [aɪ'ti: 'mænɪdʒə]	ИТ-менеджер
locate [lə(ə)'keɪt]	определять; обнаруживать точное местонахождение; показать местонахождение (чего-либо); расположить в определённом месте
maintenance ['meɪnt(ə)nəns]	сопровождение (напр., системы программного обеспечения); ведение (напр., файла); поддержание в рабочем состоянии; обслуживание (техническое); текущее обслуживание
monitoring ['mɒnɪtərɪŋ]	диспетчерское управление; текущий контроль; выполнение оперативного контроля
network administrator/engineer/ support person [ 'netwɜ:k əd'mɪnɪstreɪtə/ɛndʒɪ'nɪə/ sə'pɔ:t 'pɜ:s(ə)n]	сетевой администратор /инженер/специалист службы поддержки
NT/Windows NT (New Technology) [en'ti: 'wɪndəʊz; nju: tek'nɒlədʒi]	Windows NT
offset lithography ['ɒfset lɪ'θɒgrəfi]	офсетная плоская печать
Oracle ['ɒrəkl(ə)l]	Оракл (система телетекста, созданная Управлением независимого вещания и дающая возможность телезрителю запрашивать и получать на экране текстовые сообщения, включая рекламную-коммерческую информацию)
oversee [əʊvə'si:]	надзирать; наблюдать за (чем-либо, кем-либо)
package ['pækɪdʒ]	совокупность (напр., ограничений); корпус программы; пакет программ; упакованный объект
page layout [peɪdʒ 'leɪaʊt]	страница-шаблон; макет страницы; разметка страницы; верстка полос
project management ['prɒdʒekt 'mæɪndʒm(ə)nt]	организационная проработка проекта; управление проектными

	работами; проектирование
relational database management system (RDBMS) [rɪ'leɪʃ(ə)nəl 'deɪtəbeɪs mænɪdʒm(ə)nt 'sɪstəm]	реляционная система управления базой данных
research ['ri:sɜ:tʃ]	исследование
software engineer/designer ['sɒf(t)weə endʒɪ'nɪə/ dɪ'zainə]	специалист по программному обеспечению; инженер-специалист по программному обеспечению
specification [spesɪfɪ'keɪʃ(ə)n]	спецификация
Structured Query Language (SQL) ['strʌktʃəd 'kwɪəri 'læŋgwɪdʒ; eskju:el]	язык манипулирования данными (язык структурированных запросов)
software system analyst ['sɪstəm 'æn(ə)lɪst]	системный аналитик
system administrator/sysadmin/ system support person ['sɪstəm əd'mɪnɪstreɪtə/ sɪs'ædmin/ sə'pɔ:t 'pɜ:s(ə)n]	системный администратор / специалист по системному обеспечению
VB (Visual Basic) [vi:'bi:; 'vɪʒ(j)ʊəl 'beɪsɪk]	Визуальный Бейсик
web developer/webmaster [web dɪ'veləpə/ 'webmɑ:stə]	разработчик приложений интернета

## UNIT 3

### PERSONAL COMPUTER AND TYPES OF COMPUTERS

“Never trust a computer you can’t throw out a window.”

Steve Wozniak

#### Activity

- 1 Discuss the quote.
- 2 What kinds of computers are typical of personal use? Why?
- 3 What kinds of computers are used by large organizations? Why?
- 4 What kind of computer(s) do you have?
- 5 What are the main components and technical specifications of your computer system?

#### Text

##### Personal Computer

The machine you think of as a ‘computer’ is more precisely called a ‘**general-purpose** digital electronic computer’. It is ..... (1) because it can be programmed to perform a wide variety of applications (making it different from a **special-purpose** computer designed to perform only one function). ..... (2) means that computer handles all data internally in the form of numbers (all of the numeric data, all of the text data, and even sounds and pictures are stored as numbers). The word digit originally meant ‘finger’ or ‘toe’ and since people started counting on their fingers, the word digit also came to be applied to numbers.

A computer is an electronic machine that performs four functions: it ..... (3) (getting information into the machine); it ..... (4) (holding the information before and after processing); it ..... (5) (performing prescribed mathematical and logical operations on the information at high speed); and it ..... (6) (sending the results out to the user via some display method).

A computer consists of **hardware** and **software**. The **CPU (central processing unit)**, **main memory** and **peripherals** constitute what is known as hardware – the physical parts. The **Control Unit (CU)**, the **Arithmetic Logic Unit (ALU)** and the **registers** are the basic parts of the CPU. Peripherals are classified into three types: storage, input and output devices.

**Storage devices** can be separated into two broad categories:

- Primary
- Secondary



Primary Storage	Secondary Storage
Examples: <b>RAM, ROM</b>	Examples: <b>hard disk drives, optical disc drives, flash drives</b>
Main memory in computers used to hold data that is currently in use.	Long term storage to hold data and programs that might not be used currently but they can be used in the future.
Provides the fastest data access in computers.	Not as fast as Primary Storage.
Located on the motherboard or on the CPU.	Located on separate hardware storage devices.
Data is usually lost (except ROM) when power is off.	Data is not lost when power is off.
Limited storage size.	Larger storage size.
Example Primary Storage Size (e.g RAM): 4GB to 128GB	Example Secondary Storage Size: 512GB to 1TB

**Input devices** are peripherals used to provide data and control signals to an information processing system such as a computer. Examples of input devices include **keyboards, pointing devices** (e.g. **mouse, touchpad** etc.), **scanners, digital cameras** and **webcams**. **Output devices** are peripherals used to communicate the results of data processing carried out by a computer which converts the electronically generated information into **human-readable format**. Examples of output devices are the **monitor** and the **printer**.

Software can be divided into two categories: (i) **system software**, which includes **operating systems, programming tools, utility** and **security software**, and (ii) **application software**, which comprises programs that let you do specific tasks (e.g. graphics, email).

### Vocabulary Practice

#### 1 Task 1: Fill in the following expressions into the gaps 1– 6.

- A stores data
- B inputs data
- C digital
- D outputs data
- E processes data
- F general-purpose

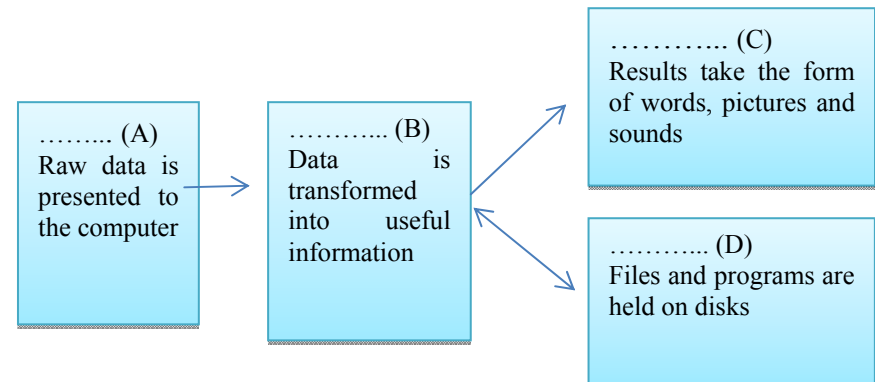
**Task 2: Complete the diagram and the sentences.**

1 Computer ..... is the visible or audible result of data processing – information that can be read, printed or heard by the user.

2 The CPU will process data as instructed by the programs you're running. .... includes functions like calculating, sorting, editing, drawing and searching.

3 DVDs are expected to replace CDs as ..... devices.

4 As a scanner, the Canon LiDE 400 can be used to ..... photographs as well as documents into the computer.



**Task 3: Read these quotations and say which computer essential they refer to.**

1 ..... Accelerate your digital lifestyle by choosing a Pentium at 4.3 GHz.

2 ..... Right-click to display a context-sensitive menu.

3 ..... You will see vivid, detailed images on a 17" display.

4 ..... This will produce high-quality output, with sharp text and impressive graphics.

5 ..... Use it when you want to let the grandparents watch the new baby sleeping.

6 ..... Press any key to continue.

**Language Functions: Classifying**

‘Classifying’ means putting things into groups or classes. We can classify types of computers, functions and parts of a computer, classes of software, etc.

<p><b>Classifying from general to specific:</b>  ... are classified into X categories ...  ... can be divided into X types/classes  There are X categories/types/classes of ...  ... include  ... consists of  ... is made up of  ... is composed of  ... comprise  e.g. Storage media are classified into three: magnetic, optical and flash memory.</p>	<p><b>Classifying from specific to general:</b>  ... is a type of ...  ... are parts/components of ...  ... constitute ...  ... make up  e.g. OCR is a type of software which categories recognizes characters.</p>
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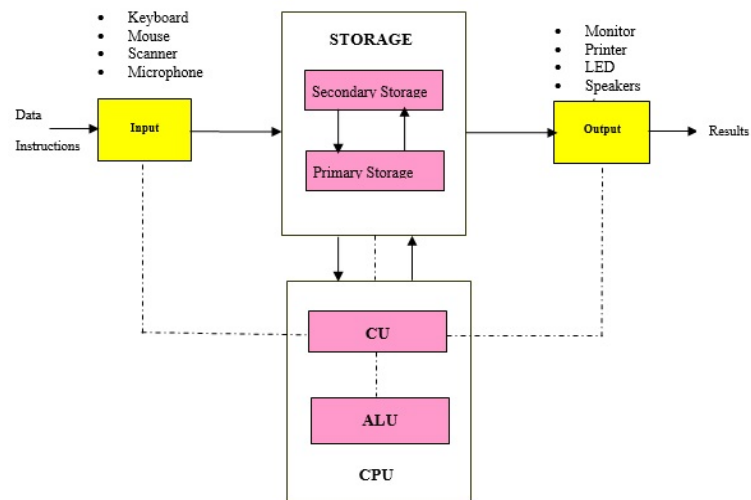
**Read the text The Personal Computer again.**

**Task 1: Underline the expressions classifying from general to specific.**

**Task 2: Underline the expressions classifying from specific to general.**

### Speaking 1

**Describe a diagram**



**Fig: Block Diagram of Computer System**

## TOPIC 2

### Text

#### TYPES OF COMPUTERS FROM A HISTORICAL POINT OF VIEW

A variety of computers have been designed for different purposes, with different capabilities and costs.

##### **Microcomputers**

A microcomputer is a computer that has a **microprocessor chip** (or multiple microprocessors) as its **central processing unit (CPU)**. They are often called **personal computers** because they are designed to be used by one person at a time. Personal computers are typically used at home, at school, or at a business. Popular uses for microcomputers include word processing, surfing the Web, sending and receiving e-mail, spreadsheet calculations, database management, editing photographs, creating graphics, and playing music or games.

Personal computers come in two major varieties, desktop computers and laptop computers:

**Desktop computers** are large and not meant to be portable. They usually sit in one place on a desk or table and are plugged into a wall outlet for power. The case of the computer holds the motherboard, drives, power supply, and expansion cards. This case may lay flat horizontally on the desk, or it may be a tower that stands vertically (on the desk or under it). The computer usually has a **separate monitor** (either a CRT or LCD) although some designs have a display built into the case. A **separate keyboard** and **mouse** allow the user to input data and commands.

**Notebook or laptop computers** are small and **lightweight** enough to be carried around with the user. They run on battery power, but can also be plugged into a wall outlet. They typically have a **built-in LCD display** that **folds down** to protect the display when the computer is carried around. They also feature a **built-in keyboard** and some kind of **built-in pointing device** (such as a **touchpad**).

While some laptops are less powerful than typical desktop machines, this is not true in all cases. Laptops, however, cost more than desktop units of equivalent processing power because the smaller components needed to build laptops are more expensive.

There were also less-powerful versions of notebook computers called subnotebooks, and netbooks that are used mainly to access the Internet, but now we have tablets and smartphones.

##### **Tablet Computers and Smartphones**

A **tablet computer** (often just called a **tablet**) generally has the format of a **handheld slate** consisting of a large **LCD touchscreen** used for both input and output. Tablets typically include a Wi-Fi and/or cellular network data connection to access the Internet. Tablets run applications specifically designed for these touchscreen devices, but they also can do some activities such as **word processing** or **spreadsheets**, although the lack of a physical keyboard usually makes such activities more cumbersome on tablets than they are on desktop or notebook machines. Examples of tablet computers include the **Apple iPad** and machines from various manufacturers that run the **Android OS**.

**Smartphones** are **high-end** mobile phones that typically run operating systems similar to the tablet computers discussed above, so they often share the same applications as tablets. They combine the features of a mobile phone, PDA, camera, music player, GPS device, etc. Many smartphones use a touchscreen for input, but some include physical keyboards.

#### **Personal Digital Assistants and Palmtop Computers**

A **personal digital assistant (PDA)** was a **handheld microcomputer** that traded off power for small size and greater **portability**. They typically used a **touch-sensitive LCD screen** for both output and input (the user drew characters and pressed icons on the screen with a **stylus**). PDAs communicated with desktop computers and with each other either by cable connection, infrared (IR) beam, or radio waves. PDAs were normally used to keep track of appointment calendars, to-do lists, address books, and for taking notes.

A **palmtop** or **handheld PC** was a very small microcomputer that also sacrificed power for small size and portability. These devices typically looked more like a tiny laptop than a **PDA**, with a **flip-up screen** and **small keyboard**. They used Windows Embedded Compact or a similar operating system for handheld devices.

Some PDAs and palmtops contained wireless networking or cell phone devices so that users could check email or surf the Web on the move.

#### **Workstations/Servers**

A workstation<sup>1</sup> is a powerful, high-end microcomputer. They contain one or more microprocessor CPUs. They may be used by a single user for applications requiring more power than a typical PC (rendering complex graphics or performing intensive scientific calculations). Alternately, workstation-class microcomputers may be used as server computers that supply files to client computers over a network or the Internet. This class of 1 powerful microcomputers can also be used to handle the processing for many users simultaneously who are connected via **terminals**; in this respect, **high-end workstations** have essentially supplanted the role of minicomputers.

There are classes of computers that are **not microcomputers**. These include supercomputers, mainframes, and minicomputers.

#### **Minicomputers**

A minicomputer is a **multi-user** computer that is less powerful than a mainframe. This class of computers became available in the 1960's when large scale integrated circuits made it possible to build a computer much cheaper than the then existing mainframes (minicomputers cost around \$100,000 instead of the \$1,000,000 cost of a mainframe). An example of a minicomputer is a PDP-11, model 40, an early member of DEC's 16-bit minicomputer family.

### **Mainframes**

A mainframe computer is a large, powerful computer that handles the processing for many users **simultaneously** (up to several hundred users). The name mainframe originated after minicomputers appeared in the 1960's to distinguish the larger systems from the smaller minicomputers.

Users connect to the mainframe using terminals and submit their tasks for processing by the mainframe. A **terminal** is a device that has a screen and keyboard for input and output, but it does not do its own processing (they are also called **dumb terminals** since they cannot process data on their own). The processing power of the mainframe is time-shared between all of the users. A personal computer may be used to '**emulate**' a dumb terminal to connect to a mainframe or minicomputer; you run a program on the PC that pretends to be a dumb terminal.

Mainframes typically cost several hundred thousand dollars. They are used in situations where a company wants the processing power and information storage in a centralized location. Mainframes are also now being used as high-capacity server computers for networks with many client workstations or for serving files over the Internet.

### **Supercomputers**

A supercomputer is a **mainframe computer** that has been optimized for speed and processing power. The most famous series of supercomputers were designed by the company founded and named after Seymour Cray. The Cray-1 was built in the 1976 and installed at Los Alamos National Laboratory. Supercomputers are used for extremely **calculation-intensive tasks, simulating nuclear bomb detonations, aerodynamic flows, and global weather patterns**. A supercomputer typically costs several million dollars. Recently, some supercomputers have been constructed by connecting together large numbers of individual processing units (in some cases, these processing units are standard microcomputer hardware).

**Task 1: Name the types of computers in the pictures A – H and describe their main function.**



**Task 2: Match the possible users 1 – 7 below to each type of the computer A - H (sometimes more than one user is possible).**

- 1 ..... travelling salesperson giving marketing presentations
- 2 ..... large company processing payroll data
- 3 ..... businessman keeping track of appointments while travelling
- 4 ..... large scientific organisation processing work on nuclear research
- 5 ..... marketing research person collecting data from the general public
- 6 ..... graphic designer
- 7 ..... elementary school pupil who needs to carry a computer to lessons.

**Task 3: Fill in the type of computer according to the description.**

- 1 ..... – a computer with a large size, amount of storage, processing power and high level of reliability, which is primarily used by large organizations requiring high volumes of data processing
- 2 ..... – a small and extremely lightweight mobile computing device (a mini laptop) with a small keyboard, but usually not CD/DVD drive, which has little processing power and storage space
- 3 ..... – a very small portable device that functions as a personal information manager

4 ..... – a large computer used for extremely calculation-intensive tasks such simulating nuclear bomb detonations, aerodynamic flows, and global weather patterns.

### Language Functions: Qualifying and Comparing

Comparing qualities and finding differences or similarities are common functions in IT. When you want to buy a new device, or you read articles about the latest computer or mobile phone, or need to make a decision about the most suitable IT system for you, you may have to use and understand expressions like the ones in the following examples:

#### Qualifying adjectives

You can buy a **low-end**, **mid-range** or **high-end** computer.

To run **highly demanding** applications, you'll need a **fast** processor, **plentiful** RAM and a **spacious** disk.

Peripherals and software must be **compatible** with the new computer.

The system should be **expandable**, i.e. it should allow you to add on new peripherals.

Most standard computers offer **integrated**, built-in, sound cards.

You can also buy **separate** external speakers.

Make sure the system you buy is **reliable**, i.e. it's not likely to go wrong.

#### Comparison

A flat-panel monitor is **slimmer than** a CRT.

A PDA is **more manageable than** a laptop.

Laser printers offer **higher quality than** ink-jet models, but ink-jet printers cost less money.

You can type **more easily** with a separate keyboard.

Free programs are **as good as** proprietary ones.

A broadband line is **the best option** to download multimedia.

This laptop is **by far the cheapest of** the three.

**The more** memory you have, **the faster** you'll be able to load your files.

#### Contrast

**In contrast**, this laptop is very fast and has a large screen.

**While** a dial-up connection is usually cheap, it is very slow.

A scanner can be useful, **but** it isn't an essential peripheral.

**Unlike** CRT monitors, TFT ones are light.

#### Similarity

**Similarly/Likewise**, it has a high capacity hard disk.

**Both** brand name **and** clone computers have similar features.

Online shops **as well as** local retailers offer good value hardware.



**Task 1: Complete these sentences with qualifying adjectives from above.**

I wanted a powerful computer to work with ..... (1) multimedia applications, so I decided to buy a ..... (2) computer with a ..... (3) microprocessor, good graphics and sound cards and ..... (4) RAM. I didn't know whether to buy a new or a used desktop. I just need it to write documents, but I was advised to buy as much as I could afford. Finally, I bought a ..... (5) but new desktop with 8 GB of memory, enough for my needs. I didn't want my new computer to become outdated too quickly. That's why I made sure it would be easily ..... (6) with enough space for add-in cards. Although many computers on the market have hard disk drives with a capacity of 160 GB to 12 TB, many home users want more ..... (7) drives because of their need for additional storage. This 'Wireless Enterprise Communicator' is the first realistic alternative to carrying around ..... (8) devices. It offers an ..... (9) mobile phone, GPS, barcode reader and hand-held computer. Before you subscribe to a music subscription service, make sure you have a ..... (10) player that supports the music formats available. Systems and devices are becoming more and more ..... (11) because reliability means manufacturers save money by having fewer tech support calls.

**Task 2: Complete the text about the advantages and disadvantages of laptops and desktop with words from above.**

..... (1) desktops and laptops have ..... (2) components but they are built in a different way. .... (3) desktops have ..... (4) space to expand the system, they are less manageable ..... (5) laptops. On the other hand, laptops are fully portable: they are lighter and ..... (6) and so more practical if you travel a lot and need to take your computer with you. .... (7) desktops, the screen, keyboard and mouse of a laptop are integrated. However, most laptop owners prefer to have a separate mouse ..... (8) the touchpad. Similarly, as the keyboard is miniaturized, some people buy an external one for use at home. You can type ..... (9) easily if you use a full-size keyboard. A laptop's CPU is slower ..... (10) access to data may be quicker, so its performance can be ..... (11) good as a desktop's. It's hard to say what the ..... (12) option is. But remember: in the computer world, ..... (13) smaller the device, the more money it costs.

**Speaking 2**

Work in pairs and decide what to buy: a tablet or a laptop. Both devices have advantages and disadvantages. Compare these two devices in terms of:

size portability weight price efficiency speed versatility

### UNIT 3 WORDLIST

accelerate [æk'seləreɪt]	ускорить
aerodynamic flow [eərəʊdaɪ'næmɪk fləʊ]	аэродинамический поток
application software [æplɪ'keɪʃ(ə)n 'sɒf(t)weə]	прикладное программное обеспечение
Arithmetic Logic Unit (ALU) [ə'riθmətɪk 'lɒdʒɪk 'ju:nɪt; eɪl'ju:]	арифметико-логическое устройство
battery power ['bæt(ə)rɪ 'paʊə]	мощность батареи
built-in [bɪlt'm]	встроенный
cathode-ray tube (CRT) ['kæθəʊd reɪ tju:b; si:ɑ:'ti:]	электронно-лучевая трубка
character ['kærəktə]	символ
client computer ['klaɪənt kəm'pjʊ:tə]	клиентский компьютер
command [kə'mɑ:nd]	команда
Control Unit [kən'trəʊl 'ju:nɪt; si:ju:]	Блок управления
cumbersome ['kʌmbəs(ə)m]	громоздкий
database management ['deɪtəbeɪs 'mænɪdʒm(ə)nt]	управление базой данных
desktop ['desktp]	рабочий стол
desktop computer ['desktp kəm'pjʊ:tə]	настольный компьютер
digit ['dɪdʒɪt]	цифра
digital camera ['dɪdʒɪt(ə)l 'kæm(ə)rə]	цифровая камера
display method [di'spleɪ 'meθəd]	способ представления
drive [draɪv]	накопитель (на дисках или ленте)
dumb terminal [dʌm 'tɜ:mɪn(ə)l]	неинтеллектуальный терминал
editing ['edɪtɪŋ]	изменение формата текста; редакционное изменение
efficiency [ɪ'fɪʃ(ə)nsi]	эффективность
emulate ['emjʊleɪt]	подражать
expandable [ɪk'spændəb(ə)l]	расширяемый
expansion card [ɪk'spænj(ə)n kɑ:d]	карта расширения
flash drive [flæʃ draɪv]	флешка
flip-up screen [flɪpʌp skri:n]	откидной экран
fold down [fəʊld daʊn]	откидной
general-purpose ['dʒen(ə)r(ə)l 'pɜ:pəs]	многофункциональный; предназначенный для решения

global positioning system (GPS) ['gləʊb(ə)l pə'zi:(ə)nɪŋ 'sɪstəm; dʒi:'pi:'es]	широкого круга задач глобальная система навигации и определения положения
global weather patterns ['gləʊb(ə)l 'weðə 'pat(ə)nz]	глобальные погодные факторы
handheld slate ['hændheld sleɪt]	портативный планшет
hard disk drive [hɑ:d disk draɪv]	жесткий диск
high-end [haɪ'end]	профессиональный; с широкими функциональными возможностями; высококлассный
highly demanding ['haɪli dɪ'mɑ:ndɪŋ]	востребованный
human-readable form ['hju:mən'ri:dəb(ə)l fɔ:m]	удобочитаемая форма
icon ['aɪk(ə)n]	условный графический символ
infrared (IR) beam [ɪnfrə'red (aɪ ɑ:bi:m]	инфракрасный луч
input device ['ɪnpʊt dɪ'vaɪs]	устройство ввода
integrated ['ɪntɪgreɪtɪd]	интегрированный
keyboard ['ki:bɔ:d]	клавиатура
large scale [lɑ:dʒ skeɪl]	крупный масштаб
Liquid Crystal Display (LCD) ['lɪkwɪd krɪst(ə)l dɪ'spleɪ; elsɪ:'di:]	жидкокристаллический дисплей
lightweight ['laɪtweɪt]	легкий
low-end ['ləʊend]	низкопроизводительный; с ограниченными возможностями
main memory [meɪn 'mem(ə)rɪ]	основная память
manageable ['mænɪdʒəb(ə)l]	управляемый
microcomputer ['maɪkrə(ʊ)kəmputə:tə]	микрокомпьютер
mid-range ['mɪdreɪndʒ]	средней производительности
minicomputer ['mɪnɪkəmputə:tə]	миникомпьютер
mouse (pl. mice/mouses) [maʊs; maɪs/maʊsɪz]	устройство ввода координат типа "мышь"
multi-user [mʌltɪ'ju:zə]	многопользовательский
netbook ['netbʊk]	нетбук
notebook/laptop (computer) ['nəʊtbʊk/ 'læptɒp]	ноутбук
operating system (OS) ['ɒpəreɪtɪŋ 'sɪstəm; əʊes]	операционная система
optical disc drive ['ɒptɪk(ə)l disk draɪv]	оптический дисковод
optimized ['ɒptɪmaɪzd]	оптимизированный
output device ['aʊtpʊt dɪ'vaɪs]	устройство вывода
palmtop (computer) ['pɑ:mtɒp]	

payroll data ['peɪrəʊl 'deɪtə]	карманный компьютер
peripheral [pə'reɪf(ə)r(ə)l]	релевантные для расчёта данные
personal digital assistant (PDA)	периферийный
['pɜ:s(ə)n(ə)l 'dɪdʒɪt(ə)l ə'sɪst(ə)nt;	персональный цифровой
pi:di:'eɪ]	помощник
plentiful ['plentɪf(ə)l]	обильный
plugged into [plʌɡt 'ɪntə]	подключенный к
pointing device ['pɔɪntɪŋ dɪ'vaɪs]	указывающее устройство
portability [pɔ:tə'bɪlɪti]	переносимость
power supply ['paʊə sə'plaɪ]	источник питания
programming tool ['prəʊgræmɪŋ tu:l]	инструмент программирования
to register ['redʒɪstə]	зарегистрироваться
scanner ['skænə]	сканер
separate keyboard ['sep(ə)rət 'ki:bɔ:d]	отдельная клавиатура
separate monitor ['sep(ə)rət 'mɒnɪtə]	отдельный монитор
server ['sɜ:və]	сервер
simultaneously [sɪml'teɪnɪəsli]	одновременно
smartphone ['smɑ:tfəʊn]	смартфон
spacious ['speɪʃəs]	просторный
special-purpose computer ['speʃ(ə)l	компьютер специального
'pɜ:pəs]	назначения
spreadsheet ['spredʃi:t]	электронная таблица
spreadsheet calculation ['spredʃi:t	расчет электронной таблицы
kalkjʊ'leɪʃ(ə)n]	
storage device ['stɔ:ɹɪdʒ dɪ'vaɪs]	запоминающее устройство
stylus ['stɑɪləs]	стилус, перо прибора
subnotebook [sʌb'nəʊtbʊk]	субноутбук
supercomputer ['su:pəkəmpu:tə]	суперкомпьютер
supply [sə'plaɪ]	снабжение
system software ['sɪstəm 'sɒf(t)weə]	системное программное
	обеспечение
tablet (computer) ['tæblɪt]	планшет
to-do list [tə'du: lɪst]	список задач
touchpad ['tʌtʃpæd]	сенсорная панель
touchscreen ['tʌtʃskri:n]	сенсорный экран
touch-sensitive [tʌtʃ'sensɪtɪv]	сенсорный
utility software [ju:'tɪlɪti 'sɒf(t)weə]	сервисное программное
	обеспечение; утилиты
versatile ['vɜ:sətəɪl]	универсальный
wall outlet [wɔ:l 'aʊtlet]	розетка питающей сети
webcam ['webkæm]	веб-камера
word processing [wɜ:d prə'sesɪŋ]	текстовая обработка
workstation ['wɜ:ksteɪʃ(ə)n]	рабочая станция

## UNIT 4

### MOTHERBOARD

“There are only 10 types of people in the world: those that understand binary and those that don’t.”

Anonymous

#### Activity

- 1 Discuss the quote.
- 2 How would you define the motherboard?
- 3 What are the basic components of the motherboard?
- 4 What is the main function of a microprocessor?
- 5 What unit of frequency is used to measure processor speed?

#### Text

The motherboard (also called the main circuit board, main logic board, mainboard, or systemboard) is the main **printed circuit board (PCB)** of the computer. It is a thin plate that holds microchips, memory, connectors for the hard drive and optical drives, expansion cards to control the video and audio, connections to the computer’s ports (such as USB ports), and with copper circuitry traces that connect the components together. The motherboard connects directly or indirectly to every part of the computer.

..... (1) This unit is a two-inch ceramic square with a silicon microprocessor chip about the size of a thumbnail built into the motherboard’s **CPU socket/slot**, which is covered by the **heat sink**, an object that absorbs heat from the CPU. The CPU executes program instructions and supervises the computer’s overall operation. It consists of three main parts:

- the **Control Unit (CU)**, which examines the instructions in the user’s program, interprets each instruction and causes the circuits and the rest of the components - disk drives, monitor, etc. - to be activated to execute the functions specified;
- the **Arithmetic Logic Unit (ALU)**, which performs mathematical calculations (+, -, etc.) and logical operations (and, or, etc.);
- the **registers**, which are high-speed units of memory used to store and control information. .... (2) Another is the **Instruction Register (IR)** which holds the instruction that is currently being executed.

One area where microprocessors differ is in the amount of data - the number of bits - they can work with at a time. There are 8, 16, 32 and 64-bit processors. The computer’s internal architecture is evolving so quickly that the new 64-bit processors are able to address four billion times more information than a 32-bit system.

The programs and data which pass through the central processor must be loaded into the **main memory** (also called the **internal memory**) in order to be processed. .... (3)

The **RAM (Random Access Memory)** is the **main memory** space of the computer and the system's **short-term memory**. The RAM is **volatile (temporary)**, which means that data disappear when the computer is turned off. Whenever a computer performs calculations, it temporarily stores the data in the RAM until it is needed. .... (4)

When a file is saved, the data is written to the hard drive, which acts as **long-term storage**. The RAM is measured in **megabytes (MB)** or **gigabytes (GB)**. The more RAM you have, the more things your computer can do at the same time. If there is not have enough RAM, the users may notice that the computer is sluggish when they have several programs open. Because of this, many people add extra RAM to their computers to improve performance.

**Single in-line memory module (SIMM)** is a small circuit board that can hold a group of memory chips. Typically, SIMMs hold up to eight (on Macintoshes) or nine (on PCs) RAM chips. The bus from a SIMM to the actual memory chips is 32 bits wide. A newer technology, called **dual in-line memory module (DIMM)**, provides a 64-bit bus.

The **ROM section (Read Only Memory)** is **non-volatile (permanent)** and contains instructions needed by the processor. The ROM does not need power to remember its contents, so this is where a computer stores the programs that are needed to start up (boot up) the computer system. .... (5) This initial program checks to see that everything is in order and looks for storage devices on which it can locate a copy of the **operating system (OS)**; it then loads the first part of the OS into RAM, then hands control over to that program to finish the boot process. The start-up instructions stored on ROM in a computer are part of the **BIOS (Basic Input Output System)**, which also contains the low-level interface code needed to access the drives, keyboard, and produce simple display output.

The **cache** is a special high-speed buffer storage mechanism which stores copies of the data from frequently used main memory locations. Most CPUs have different independent caches, including instruction and data caches, where the data cache is usually organized as a hierarchy of more cache levels.

Most of today's computers have internal **expansion slots** that allow users to install **accelerator cards**, video cards, audio/sound cards, network interface cards and **co-processors**.

As the word implies, an accelerator card is a board that increases the processor speed. A co-processor is a silicon chip that performs precise tasks and mathematical operations at a very high speed.

**Network interface card/controller (NIC)** allows your computer to communicate over a network and access the Internet. It can either connect with

an **Ethernet cable** or through a **wireless connection (Wi-Fi)**.  
..... (6)

**Bluetooth** is a technology for wireless communication over short distances. It is often used in computers to communicate with wireless keyboards, mice, and printers. It is often built into the motherboard or included in a wireless network card. For computers that do not have Bluetooth, a USB adapter, called a **dongle**, can be purchased.

The **video card** is responsible for what you see on the monitor. Most computers have a **graphics processing unit (GPU)** built into the motherboard instead of having a separate video card. Those who like playing graphics-intensive games can add a faster video card to one of the expansion slots to get better performance. The **sound/audio card** is responsible for what you hear in the speakers or headphones. Most motherboards have integrated sound, but you can upgrade to a dedicated sound card for higher-quality sound.

The power and performance of a computer is partly determined by the speed of its microprocessor. A **system clock** provides pulses at fixed intervals to measure and synchronize circuits and units. .... (7) For example, a CPU running at 1.8 GHz (1,800 million cycles per second) is likely to provide a very fast processing rate and will enable the computer to handle the most demanding applications.

**Task 1: Read the text and complete the missing sentences.**

**A** One of these registers is the program counter (PC) which keeps track of the next instruction to be performed in the main memory.

**B** When the computer is first turned on, the program stored in the ROM is fed to the processor.

**C** The CPU (also called the processor) is the brains of the computer where the actual processing data takes place.

**D** Thus, when the user runs an application, the microprocessor looks for it on secondary memory devices (disks) and transfers a copy of the application into the RAM area

**E** If the user is working on a document, spreadsheet, or other type of file, he or she will need to save it to avoid losing it.

**F** The clock speed is measured in GHz (gigahertz) and refers to the frequency at which pulses are emitted.

**G** Many motherboards have built-in network connections, and a network card can also be added to an expansion slot.

**Task 2: Decide whether the statements are true (T) and false (F).**

1 .... The CPU directs and coordinates the activities taking place within the computer system.

- 2 ..... The Arithmetic Logic Unit performs calculations on the data.
- 3 ..... 32-bit processors can handle more information than 64-bit processors.
- 4 ..... The program counter holds the instruction that is being executed.
- 5 ..... A chip is an electronic device composed of silicon elements containing a set of integrated circuits.
- 6 ..... Information cannot be processed by the microprocessor if it is not loaded into the main memory.
- 7 ..... RAM and ROM are the components of the main memory.
- 8 ..... 'Permanent' storage of information is provided by RAM.
- 9 ..... BIOS is used to perform hardware initialization during the booting process.
- 10 ..... The speed of the microprocessor is measured in gigahertz or megahertz. One MHz is equivalent to one million cycles per second.
- 11 ..... A co-processor is used to supplement the functions of the primary processor.
- 12 ..... A system clock is a high-speed unit of memory used to store and control data.

### Vocabulary Practice

**Task 1: Match the sentence beginnings (1 – 6) with the correct endings (A – F).**

- 1 The CPU processes data and .....
- 2 The Control Unit is the part of the CPU that .....
- 3 The arithmetic and logic unit is able to make .....
- 4 The registers are high-speed storage .....
- 5 Data contained in RAM is lost when .....
- 6 ROM memory can only be read .....

- A** areas within the CPU.
- B** you can't make changes to it.
- C** controls the way instructions are executed.
- D** the computer is turned off.
- E** coordinates the other parts of the computer.
- F** calculations: add, subtract, multiply and divide.

**Task 2: Do the crossword puzzle**



# Hardware Crossword

T D Z T W M V Y Q Z G U S M T D Y R P L H S Z H  
 V E O Q U B V E C O N T R O L L E R C A R D S T  
 B R A D R A C R E T P A D A S C I H P A R G N I  
 L A V N O G L H V J N X C F G C H G H I P G D N  
 V W L K P P J K Y V K U P I T O Y V L J R R U U  
 M D G K E Y B O A R D Q E V D V A T W S J N T G  
 T R S Y X J I L S L B L G A A T U P T U O O A N  
 M A Z W O Z Y M F H S V O D M D Q B H U M L Q I  
 C H A Z D K Y Y Q K S Q A F Q H M O A L W X P S  
 A Q N L E R M D O U H A T J W H D Z K W D O Q S  
 T B I K X Z Y Y J U A M P Y O D B Y R O M E M E  
 K Q W N P H N U K Y R F I W E H L I P V Y Q X C  
 H C L Y R A S T D H U M L W P D V D T W V R P O  
 V R U A O D Z A F P V L Z A T F H R U J Z F L R  
 S M D L C J J I J H Q O E V Y R I A P Z N A M P  
 T R Z P E D G Z M F Q X L D B A K O N B C P O L  
 X D L S S J Q P R P G R V V R M P B I U E E S A  
 P Y Z I S A Q S T O R A G E V O C R L S Z E L R  
 C K Q D O O S K M G J T R O M S T E O L T A E T  
 I P R I M A R Y S T O R A G E T W H L I N W N  
 F K T N O S G C M N Q Y B M N M Q T W N N Z N E  
 Q E Y W B T F F T E G D D H F D C O Q E X H G C  
 W X V W X X D Q Y S N B R C L B R M J H H H M S  
 L D P B K K S Y A I I R H B H M D W D K Z W P B

- |             |                  |                         |
|-------------|------------------|-------------------------|
| memory      | Keyboard         | Input                   |
| Process     | Primary Storage  | ROM                     |
| RAM         | Controller cards | Graphics adapter card   |
| Bus line    | Output           | hardware                |
| display     | storage          | central processing unit |
| Motherboard |                  |                         |

<https://wordwall.net/en-gb/community/motherboard>

## Reading 1 ClearPic Troubleshooting Guide

Certain memory requirements are necessary to install and run ClearPic. Check that the computer has at least 700 MB of RAM available. For optimal performance, make sure the computer's CPU has a bit size of at least 32 bits. It should run at a bus speed of 1.4 GHz. There are several options to fix problems with limited memory. One, is to limit the number of programs running at the same time. Another, is to increase the amount of RAM. First, determine whether your computer uses SIMMs or DIMMs. Make sure that the memory's bus speed

matches that of the computer. Purchase the appropriate amount of RAM and attach it to the motherboard. You can also increase your computer's virtual memory. This temporarily stores data on a paging file on the computer's hard drive. To add virtual memory, click on the 'My Computer' icon. Under 'Properties', increase the maximum memory amount.

**Task 1: Read the troubleshooting guide and choose the correct answers.**

- 1 What is the passage mainly about?  
A the main function of the CPU  
B where to install the ClearPic file  
C how to add or modify computer memory  
D speeds of RAM attached to the motherboard

- 2 What should people do first when increasing available RAM?  
A check to see if they need SIMMs or DIMMs  
B increase the amount of virtual memory  
C temporarily store their data on a paging file  
D make sure the CPU runs at a speed of 1.4 GHz

- 3 What is NOT a way to fix a limited memory problem?  
A increase the amount of virtual memory  
B buy a new motherboard for the computer  
C reduce the number of programs running  
D increase the amount of available RAM

**Task 2: Complete the definitions with the words from the text.**

- 1 Data that doesn't fit in the RAM is stored in .....
- 2 ..... is a memory module that sends up to 64 bits of data to a CPU.
- 3 The computer has a ..... of 64 bits.
- 4 ..... is a unit of measurement that measures the speed of a CPU.
- 5 The purpose of ..... is to enlarge the address space, the set of addresses a program can utilize.
- 6 The smallest unit of computer data is a .....
- 7 ..... is a memory module that sends up to 32 bits of data to a CPU.
- 8 The computer's CPU has a ..... of 1.4 GHz.

## Language Functions: Describing Function

An object is defined by describing its function and properties. There are several ways of describing function:

- **used to + infinitive:**

ROM is used to store frequently used instructions and data to control the basic input and output operations of the computer.

- **used for + -ing:**

ROM is used for storing frequently used instructions and data to control the basic input and output operations of the computer.

- **relative pronoun + verb:**

ROM is non-volatile memory which/that stores frequently used instructions and data to control the basic input and output operations of the computer.

- **relative pronoun + is used to + infinitive:**

ROM is non-volatile memory which/that is used to store frequently used instructions and data to control the basic input and output operations of the computer.

An object can also be defined **using which/that/where:**

- Cache memory is a small-sized type of volatile computer memory **that** provides high-speed data access to a processor and stores frequently used computer programs, applications and data.

- The CPU is the brains of the computer **where** the actual processing data takes place.

## Speaking 1

**Work in pairs, A and B. Choose and describe functions of the components that the motherboard is made up of. Try to guess which component your partner is describing.**

<b>Student A</b> heat sink RAM accelerator card DIMM video card BIOS	<b>Student B</b> sound card system clock SIMM ALU network card Bluetooth card
--	---

## Reading 2

### Units of Memory Binary code and bits

Information is processed and stored in computers as electrical signals. A computer contains thousands of electronic circuits connected by switches that can only be in one of two possible states: ON (the current is flowing through the wire) or OFF (the current is not flowing through the wire).  
..... (1) This is the only way a computer can ‘understand’ anything. Everything about computers is based upon this binary process. Each 1 or 0 is called a **binary digit**, or **bit** – the smallest unit of information on a machine.

#### Bytes and characters

1s and 0s are grouped into eight-digit codes that typically represent characters (letters, numbers and symbols). **Eight bits together are called a byte**. Thus, each character in a keyboard has its own arrangement of eight bits. For example, 01000001 for the letter A, 01000010 for B and 01000011 for C.  
..... (2):

Examples of conversions:

Symbol	..... (3)	Binary
A	65	01000001
B	66	01000010
C	67	01000011
D	68	01000100

#### ASCII

**ASCII** (pronounced ‘ask-key’), which stands for the **American Standard Code for Information Interchange**, ..... (4). ASCII uses 7-digit binary numbers to represent the letters of the alphabet, the numbers 0 to 9, various punctuation marks and symbols, and some special functions, such as the carriage return. **Seven digits in binary code imply that ASCII has room for 128 characters or symbols** ( $2^7 = 128$ , thus 128 possible code combinations can be made with seven places to arrange 1s and 0s).

#### Kilobytes, megabytes and gigabytes

In order to avoid astronomical figures and sums in the calculation of bytes we use units such as kilobytes, megabytes and gigabytes.  
..... (5)

Unit of memory	Abbreviation	Exact memory amount
Binary digit	bit or b	1 or 0
Byte	B	8 bits

Kilobyte	KB or K	1,024 bytes ( $2^{10}$ )
Megabyte	MB	1,024 KB, or 1,048,576 bytes ( $2^{20}$ )
Gigabyte	GB	1,024 MB, or 1,073,741,824 bytes ( $2^{30}$ )
Terabyte	TB	1,024 GB, or 1,099,511,627,776 bytes ( $2^{40}$ )

**Task 1: Read the text and complete the missing parts A – E.**

A permits computers from different manufacturers to exchange data

B Binary means that each position counts for twice as much.

C These units are used to describe the RAM memory, the storage capacity of disks and the size of any application or document.

D To represent these two conditions, we use **binary code** in which **1 means ON** and **0 means OFF**.

E **Decimal**

**Task 2: Complete these descriptions with the correct unit of memory.**

1 A ..... is about one trillion bytes (1,000,000,000,000 characters) – about as much text as the books and magazines in a huge library.

2 A ..... is about one million bytes – about as much text as a 300-page novel.

3 A ..... is about one thousand bytes – equivalent to one sheet of A4.

4 A ..... is about one billion bytes (1,000,000,000 characters) – about as much text as 1,000 books.

5 A ..... can store a single character, such as the letter e or number 7.

**Speaking 2**

**Role-play a dialogue between a sales assistant and a customer using the instructions and information about the computers below to help you.**

**Student A: You are a sales assistant.**

- Greet the customer and offer help.
- Show the customer some models.
- Give technical specs and explanations (describe processor, storage capacity, etc.)
  - Compare the two different models.
  - Give the required information.
  - Give the price and explain different ways of paying.

**Student B: You are a customer.**

- Explain what you are looking for.
- Ask for some technical specs (ask for details: processor, RAM, storage capacity etc.)
- Ask about any further technical specs (DVD drive, monitor, communications, etc.)
- Ask about the monitor and other features. • Ask the price. • Decide which computer to buy or leave the shop.

Products Available	Processor	OS	Display Type	Memory	Storage	Other
Lenovo Yoga S730 Laptop Price £699.99	Intel Core i7-8565U Processor 1.80GHz 8MB cache	Windows 10 Home 64	13.3" Full HD 1,920x1,080	16.0GB LPDDR3 SODIM M 2133MHz	256GB PCIe SSD	Graphics Intel UHD Graphics 620 Battery 4 Cell Li-Polymer Security Features Fingerprint Reader Dimensions W: 307mm D: 210mm H: 11.9mm
Legion T530 Gaming Tower Price £1,099.99	Intel Core i5-9400 Processor 2.90GHz 9MB cache	Windows 10 Home 64		8.0GB PC4-21300 DDR4 UDIMM 2666MHz	512GB PCIe SSD	Optical Drive DVD-RW Graphics NVIDIA GeForce RTX2060 6GB GDDR6 WiFi Wireless LAN Adapters Lenovo AC Wireless (2x2) Bluetooth Version 4.2 Dimensions W: 184.5mm D: 408mm H: 363mm
Asus ROG Zephyrus S GX701 Gaming Laptop Price £2,429	Intel Core i7-8750H Processor 2.2GHz 9MB cache		17.3" Full HD 1,920x1,080	24GB DDR4 2,666MHz	1TB M.2 PCIe x4 SSD	Graphics Nvidia GeForce RTX 2080 Max-Q (8GB GDDR6 VRAM); Intel UHD Graphics 630 Dimensions W: 399mm D: 272mm H: 18.7mm

### Quiz

1 One way to connect your computer with other computers is a  
A motherboard.  
B ROM card.  
C SD card.  
D NIC card.

2 The power supply provides power for  
A many of the PC peripherals.  
B both the components in the computer and many peripherals.  
C only the PC peripherals.  
D only components in the computer.

3 The hard drive is usually  
A a stack of optical platters.  
B the most expensive form of memory.  
C sealed in a protective case.  
D the volatile storage space in the computer system.

4 The main circuit board in the computer is called  
A the bus.  
B the motherboard.  
C the CPU.  
D RAM.

5 The part of the computer used for calculations is  
A RAM.  
B the bus.  
C the CPU.  
D the motherboard.

6 The contents of ..... are erased when the computer is turned  
off.  
A the motherboard  
B floppy disks  
C RAM  
D the hard drive

7 Instructions needed when starting the computer are stored in  
A RAM.  
B the motherboard.  
C ROM.  
D cache.

8 A non-volatile storage device

A is similar to RAM.

B maintains data even when the computer's power is turned off.

C is not temperature-sensitive.

D loses data when the computer's power is turned off.

9 Expansion cards

A consist of volatile memory.

B provide additional functionality to the PC.

C consist of non-volatile memory.

D are where ROM is stored.

10 A card that translates binary data into images on a monitor is a

A translator card.

B monitor card.

C motherboard.

D video card.

#### UNIT 4 WORDLIST

American Standard Code for Information Interchange (ASCII) ['æski]	Американский стандартный код для обмена информацией
AND gate [ænd geɪt]	И-ячейка
Basic Input Output System (BIOS) ['baɪəʊs]	Базовая система ввода-вывода
binary code ['bɪnəri kəʊd]	двоичный код
binary digit ['bɪnəri 'dɪdʒɪt]	двоичная цифра
bit [bɪt]	бит
Bluetooth ['blu:tʊθ]	технология Bluetooth
buffer storage mechanism ['bʌfə 'stɔ:ri:dʒ 'mek(ə)nɪz(ə)m]	механизм буферного хранения
byte [baɪt]	байт
cache [kæʃ]	кэш, быстродействующая буферная память
central processing unit (CPU) ['sentr(ə)l prə'sesɪŋ 'ju:nɪt; si:pi:'ju:]	центральный процессор
connector [kə'nektə]	соединитель
co-processor/coprocessor [kəʊ'prəʊsesə]	сопроцессор
currently ['kʌrəntli]	в настоящее время
decimal ['desɪm(ə)l]	десятичный
dongle ['dɒŋɡ(ə)l]	программный ключ
dual in-line memory module (DIMM) ['dju:əl 'ɪnlam 'mem(ə)ri 'mɒdju:l; dɪm]	двойной встроенный модуль памяти



Ethernet ['i:θənet]	сеть Ethernet
execute ['eksɪkjʊ:t]	выполнить
expansion slot [ɪk'spænʃ(ə)n slɒt]	слот расширения
gigabyte (GB) ['gɪgəbaɪt]	гигабайт
graphics processing unit (GPU) ['græfɪks prə'sesɪŋ 'ju:nɪt; dʒi:pi:'ju:]	графический процессор
heat sink [hi:t sɪŋk]	радиатор
Instruction Register (IR) [ɪn'strʌkʃ(ə)n 'redʒɪstə; aɪ ɑ:]	регистр инструкций
kilobyte (KB) ['kɪləbaɪt]	килобайт
logic gate ['lɒdʒɪk geɪt]	логический вентиль
long-term [lɒŋ 'tɜ:m]	долгосрочный
low-level interface [ləʊ'lev(ə)l 'ɪntəfeɪs]	низкоуровневый интерфейс
main/internal memory [meɪn/ ɪn'tɜ:n(ə)l 'mem(ə)rɪ]	основная/внутренняя память
megabyte (MB) ['megəbaɪt]	мегабайт (МБ)
motherboard ['mʌðəbɔ:d]	материнская плата
network interface card/controller (NIC) ['netwɜ:k 'ɪntəfeɪs kɑ:d/ kən'trəʊlə; nɪk]	сетевая интерфейсная карта/контроллер
non-volatile memory [nɒn'vɒlətaɪl 'mem(ə)rɪ]	энергонезависимая память, постоянная память
NAND gate [nænd geɪt]	вентиль И-НЕ
alternative denial [ɔ:l'tɜ:nətv dɪ'naɪəl] (Sheffer stroke [ʃefə strəʊk])	альтернативное отрицание код Шеффера
NOR gate [nɔ:(r) geɪt] – joint denial [dʒɔɪnt dɪ'naɪəl] (Peirce's arrow [piəsɪz 'ærəʊ])	вентиль НЕ-ИЛИ совместное отрицание (стрелка Пирса)
NOT gate [nɒt geɪt]	вентиль НЕ [nɒt geɪt]
inverter [ɪnvɜ:tə]	инвертирующий элемент (отрицание)
(negation [nɪ'geɪʃn])	
OR gate [ɔ:(r) geɪt] – disjunction [dɪs'dʒʌŋkʃn]	вентиль ИЛИ дизъюнкция, функция ИЛИ
page/paging file [peɪdʒ/'peɪdʒɪŋ faɪl]	страничный файл
port [pɔ:t]	порт
power supply unit ['paʊə(r) sə'plaɪ 'ju:nɪt]	блок питания
printed circuit board (PCB) [prɪntɪd 'sɜ:kɪt bɔ:d; pi:si:'bi:]	печатная плата (PCB)
program counter (PC) ['prəʊgræm 'kaʊntə]/ instruction pointer (IP) [ɪn'strʌkʃ(ə)n 'kaʊntə]	счетчик программ (ПК) указатель команд
Random Access Memory (RAM) ['rændəm 'aksɪs 'mem(ə)rɪ; rɑm]	оперативная память (RAM)
Read Only Memory (ROM) [ri:d 'əʊnli 'mem(ə)rɪ; rɒm]	память только для чтения постоянная память

secondary memory/storage ['sekəndri 'mem(ə)ri /'stɔ:ri:dʒ]	вторичная память/хранилище
selector [sɪ'lektə]	селектор
short-term [ʃɔ:t'tɜ:m]	краткосрочный
silicon chip ['silɪk(ə)n tʃɪp]	кремниевый чип
single in-line memory module (SIMM) ['sɪŋg(ə)l 'ɪnlaɪn 'mem(ə)ri 'mɒdju:l; sɪm]	одиночный встроенный модуль памяти
slot/socket [slɒt/'sɒkɪt]	разъём центрального процессора
sluggish ['slʌɡɪʃ]	медленно реагирующий
sound/audio card [saʊnd/ 'ɔ:diəʊ kɑ:d]	аудиокарта
start up/boot up [stɑ:t ʌp/ bu:t ʌp]	запуск / загрузка
storage ['stɔ:ri:dʒ]	хранилище
system clock ['sɪstəm klɒk]	часы системного времени
terabyte (GB) ['terəbaɪt]	терабайт
troubleshooting guide ['traʊblʃu:tɪŋ gaɪd]	руководство по устранению неполадок
two-inch ceramic square [tu: ɪntʃ sɪ'ræmɪk skweə]	двухдюймовый керамический квадрат
upgrade [ʌp'ɡreɪd]	обновить
video card ['vɪdiəʊ kɑ:d]	видеокарта
volatile memory ['vɒlətaɪl 'mem(ə)ri]	энергозависимая память
wireless connection/Wi-Fi ['waɪələs kə'nekʃ(ə)n/'waɪfaɪ]	беспроводное соединение/Wi-Fi
XNOR gate [eksno:(r) geɪt] – exclusive NOR [ɪk'sklu:sɪv nɔ:(r)]	логический элемент исключающее ИЛИ НЕ –
XOR gate [eksɔ:(r) geɪt] – exclusive OR [ɪk'sklu:sɪv ɔ:(r)]	исключающее ИЛИ

## REVIEW UNITS 1–4

### Task 1: Identify these items.

15 pts/1 pt

- 1 ..... – a monitor that has no processing capabilities; an output device that accepts data from the CPU
- 2 ..... – a microprocessor designed to supplement the capabilities of the primary processor
- 3 ..... – an opening in a computer where a circuit board can be inserted to add new capabilities to the computer
- 4 ..... – a component designed to lower the temperature of the CPU by dissipating heat into the surrounding air

5 ..... – a small device able to be connected to and used with a computer, especially to allow access to wireless broadband or use of protected software

6 ..... – a small circuit board that has 64-bit path and holds memory chips

7 ..... – a register in the control unit of a computer which contains the address of the next instruction to be executed, the address being increased by one after each execution unless an instruction to do otherwise occurs

8 ..... – the fastest type of computer which is very expensive and is employed for specialized applications that require immense amounts of calculations

9 ..... – a machine-readable representation of the UPC (Universal Product Code) which is read by a scanner that passes over the code and registers the UPC

10 ..... – a third-party entity that manages and distributes software-based services and solutions to customers across a wide area network from a central data center

11 ..... – memory that loses its contents when the power is turned off including all RAM except the CMOS RAM used for the BIOS

12 ..... – the term used to describe a type of data transmission in which a single medium (wire) can carry several channels at once

13 ..... – a technology similar in theory to bar codes identification. With it, the electromagnetic or electrostatic coupling in the RF portion of the electromagnetic spectrum is used to transmit signals

14 ..... – an individual responsible for maintaining a multi-user computer system, including a local-area network (LAN)

15 ..... – the built-in software that determines what a computer can do without accessing programs from a disk

**Task 2: Fill in the verbs in infinitive according to their definition.**

5 pts/1 pt

1 ..... – to supervise or manage a person or their work, especially in an official capacity

2 ..... – to discover the exact place or position of something

3 ..... – to carry out an instruction or program

4 ..... – to make something suitable for a new use or purpose; to modify

5 ..... – to change or make something from one format or system to another (e.g. data)

**Task 3: Complete each gap in this text with a suitable word from this list.** 20 pts/1 pt

angle	design	full	plug
browsing	devices	headed	positions
companion	directly	look	powerful
consumption	efficient	micro	store
contrary	equipped	outlets	units

**Meet the Solartab**

Welcome, and thanks for taking a look at the Solartab – the ..... (1), portable and beautiful solar charger: A premium solar charger:

The Solartab was born out of the idea of creating a high quality solar charger with attractive design and a truly ..... (2) solar panel. Solar power should never be a mere gimmick – on the ..... (3), we believe it’s the future of power ..... (4)! A tablet-sized solar charger makes for a powerful and essential asset that truly liberates you from the power ..... (5) of your home. Every day.

Unique cover: We believe in smart ..... (6). Our unique cover does not only give the Solartab a stunning and nostalgic ..... (7), it also works as a stand for the solar panel. Using the stand, you can angle the panel in three different ..... (8), allowing your phone or tablet to always charge as efficiently as possible. Find the right ..... (9) for maximum exposure to sunlight, ..... (10) in your device, and start charging! And even more, the cover will protect the Solartab while it’s tucked away in your bag – always ready to join you wherever you’re ..... (11) next.

A powerful asset – day and night: Thanks to the Solartab’s large solar panel you can always charge your device ..... (12) from the sun. Even while listening to your favorite summer tune or ..... (13) the Internet at the same time. But we also ..... (14) the Solartab with a high capacity internal in battery, so you can even ..... (15) solar power – and give your tablet another ..... (16) charge after sunset. Just whip it out during the day, not matter where you are, and you’ve always got power stored for when you really need it!

Put the power into your own hands: With two USB ports and a ..... (17) USB port, the Solartab is ready to keep any your mobile devices going at all times. And instead of simply leeching energy out of your home’s power outlets, your ..... (18) will become truly independent ..... (19) – taking advantage of the free and green energy that the sun provides right outside of your doorstep. An environmentally friendly, portable and never-ending source of energy, always ready for use: The Solartab is the perfect ..... (20) to your favorite gadgets!

## UNIT 5

### INPUT DEVICES

“I’m sorry, but a mouse is better than a controller.”

PC Master Race

#### Activity

- 1 Discuss the quote.
- 2 How would you define input devices?
- 3 Which pointing device based on motion of an object do you use most often and why?
- 4 Which pointing devices based on touching a surface do you prefer and why?
- 5 What types of imaging, video and audio input devices do you use? When do you use them?

#### Text

An **input device** is a peripheral used to provide data and control signals to an information processing system such as a computer or other information appliance, such as smartphones and personal digital assistants (PDAs). Examples of input devices include **keyboards**, **pointing devices**, and **imaging, video and audio input devices**.

#### Keyboard

A keyboard is an input device where data is keyed in. It is used to enter text information into the computer, as when you type the contents of a report. The keyboard can also be used to type commands directing the computer to perform certain actions. Commands are typically chosen from an on-screen menu using a mouse, but there are often **keyboard shortcuts** for giving these same commands. Inputting data quickly is sometimes referred to as ‘touch-typing’, ‘speed-typing’, or simply ‘typing quickly’.

The keyboard has several groups of keys. In addition to the keys of the **main keyboard** (used for typing text) with the **alphanumeric group** including **the space bar** which is a horizontal bar in the lowermost row, keyboards usually also have:

- a **numeric keypad** (for entering numerical data efficiently);
- a bank of **editing keys** used in text editing operations such as
  - the **Insert key** - used to switch between the two text-entering modes,
  - the **Delete key** - deletes things to the right of it,
  - the **Backspace key** - deletes things to the left of it,
  - the **Enter key** - used to start a new line or a new paragraph,
  - the **lock keys** – including **Num lock**, **Caps lock** and the **Scroll lock**;

- the **cursor** or **navigation keys** (the **arrow keys**, the **Home**, **End**, **Page up**, **Page down keys** and the **Tab key**);
- a row of twelve **function keys** along the top (to easily invoke certain program functions);
- the modifiers (the **Shift key**, **Control key**, **Alternate key** and the **Fn key**);
- the **system keys** (the **System Request key**, **Escape key** and the **Menu key**).

### Pointing Devices

The graphical user interfaces (GUIs - sometimes pronounced ‘goeey’ or ‘gee-you-eye’) which allow users to interact with electronic devices through graphical icons and visual indicators require some kind of device for positioning the on-screen cursor. There are two categories of pointing devices:

- 1 **based on motion of an object**: mouse, trackball, joystick and trackpoint;
- 2 **based on touching a surface**: graphics tablet, touchpad, stylus, and touchscreen.

### Mouse

A mouse provides a means of pointing to items on a computer screen. It is moved around on a flat surface (usually on a **mouse pad**) until the cursor is in the desired position. The mouse usually has **two buttons** and a **scroll wheel**, which can also act as a third button. There are several kinds of mouse: wireless mouse, wired mouse, mechanical mouse, optical mouse, laser mouse, trackball, etc.

The **optical mouse** does not use a rolling ball, but instead uses a **light** and a **small optical sensor** to detect the motion of the mouse by tracking a tiny image of the desk surface. Optical mice avoid the problem of a dirty mouse ball, which causes regular mice to roll unsmoothly if the mouse ball and internal rollers are not cleaned frequently.

A **cordless** or **wireless mouse** communicates with the computer via radio waves (often using Bluetooth hardware and protocol) so that a cord is not needed (but such mice need internal batteries).

Pushing and releasing a mouse button is called **clicking**. By clicking a button, a signal is sent to the computer via the processor. Moving the mouse pointer to an item and clicking is called ‘clicking on the item’ or simply ‘clicking the item’. Mice are used to select or deselect an item from a menu by clicking it, when you to activate a program, or when you want to perform what are called **drag** and **drop** functions. In addition to the **single click** there is also the **double click**. The double click on the **left button** of the mouse is usually used to open a file, disk, or folder. The **right button** of the mouse is used to open the pop-up menu.

Note: The plural of ‘mouse’ as the computer device is either **mice** or **mouses**. However, the more common plural is mice.

### **Trackball**

A trackball is similar to an **upside-down mouse**, with the **ball** located on top. When the user rolls the ball with fingers, the internal rollers (similar to what’s inside a mouse) sense the motion which is transmitted to the computer. Trackballs have the advantage over mice in that the body of the trackball remains **stationary** on a desk, so the user does not need as much room to use the trackball. Early laptop computers often used trackballs (before superior touchpads came along).

### **Joystick**

A joystick consists of a stick that **pivots on a base** and reports its angle or direction to the device it is controlling. Joysticks are generally used for playing games, and not for controlling the on-screen cursor in productivity software.

### **Trackpoint**

A trackpoint or **pointing stick** is a small rubber projection **embedded** between the keys of the keyboard. The trackpoint acts like a little joystick that can be used to control the position of the on-screen cursor.

### **Graphics tablet**

A graphics tablet enables a user to hand-draw images, animations and **graphics**, similar to the way a person draws images with a pencil and paper. It consists of a flat surface upon which the user may ‘draw’ or trace an image using an attached **stylus**, a pen-like drawing apparatus. The image is displayed on the computer monitor, although some graphics tablets also have a screen.

### **Touchpad**

A touchpad is a flat surface that can detect finger contact. It is a stationary pointing device, commonly used on laptop computers. At least one physical button normally comes with the touchpad, but the user can also generate a mouse click by tapping on the pad.

### **Stylus**

A stylus is a small pen-shaped instrument that is used to input commands to a computer screen, mobile device or graphics tablet.

### **Touchscreen**

A touchscreen is an **electronic visual display** that the user can control through simple or **multi-touch gestures** by touching the screen with a special

stylus and/or one or more fingers. Touchscreens play a prominent role in the design of digital appliances such as personal digital assistants (PDAs), mobile phones, interactive whiteboards (smartboards), interactive tables, satellite navigation devices, and video games.

### **Imaging, Video and Audio Input Devices**

#### **Scanner**

A scanner is a device that optically **scans** images, printed text, handwriting, or an object, and **converts** it to a **digital image**.

#### **Digital camera**

A digital camera (or digicam) is a camera that **encodes digital images** and videos digitally and stores them for later reproduction.

#### **Digital camcorder**

A camcorder is an electronic device combining a video camera and a video recorder, typically used for consumer video recording.

#### **Webcam**

A webcam is a video camera that **feeds** or **streams** its image in real time to or through a computer to computer network. A webcam can be connected to a computer by a USB cable or built into computer hardware, such as laptops.

#### **Portable media player**

A portable media player (**PMP**) is a portable digital consumer electronics device capable of **storing** and **playing** media such as **audio**, **images**, and **video files**.

#### **Microphone**

A microphone, colloquially **mic** or **mike**, is an **acoustic-to-electric transducer** or sensor that converts sound in air into an electrical signal.

### **Vocabulary Practice**

#### **Task 1: Identify the key according to the definition.**

- 1 ..... deletes things to the right of it
- 2 ..... starts a new line or a new paragraph
- 3 ..... enters a blank area between letters or words
- 4 ..... move the indicator on a display in a specified direction
- 5 ..... switches between the two text-entering modes



- 6 ..... produces upper-case letters
- 7 ..... deletes things to the left of it
- 8 ..... moves the cursor horizontally to the right for a fixed number of spaces

- A Function keys
- B Character keys
- C Navigation keys
- D Numeric keypad
- E Modifier keys
- F Lock keys
- G Enter and editing keys
- H System and GUI keys

**Task 3: Complete the text about mouse actions with following verbs.**

- A click    B double-click    C drag    D grab    E select    F move    G control

A mouse allows you to ..... (1) the cursor and move around the screen very quickly. Making the same movements with the arrow keys on the keyboard would take much longer. As you ..... (2) the mouse on your desk, the pointer on the screen moves in the same direction. The pointer usually looks like an I-bar, an arrow, or a pointing hand, depending on what you are doing.

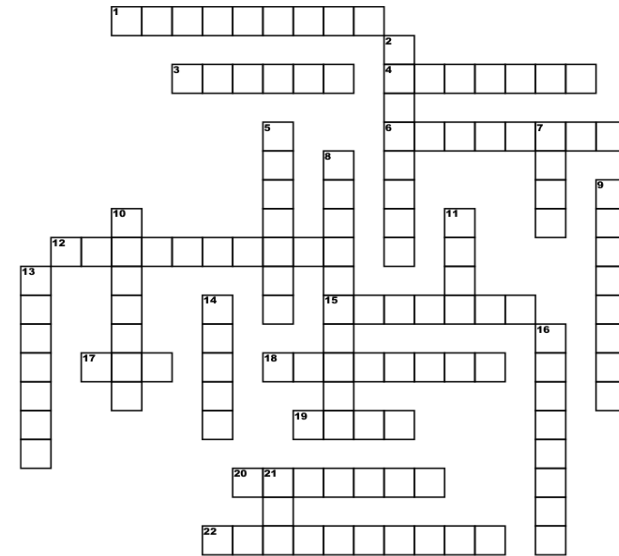
A mouse has one or more buttons to communicate with the computer. For example, if you want to place the insertion point or choose a menu option, you just ..... (3) (press and release) on the mouse button, and the option is chosen.

The mouse is also used to ..... (4) text and items on the screen. You can highlight text to be deleted, copied or edited in some way. The mouse is widely used in graphics and design. When you want to move, press the mouse button, and ..... (5) the image to a new location on the screen. Similarly, the mouse is used to change the shape of a graphic object. For example, if you want to convert a square into a rectangle, you ..... (6) one corner of the square and stretch it into a rectangle.

The mouse is also used to start a program or open a document: you put the pointer on the file name and ..... (7) on the name – that is, you rapidly press and release the mouse button twice.

**Task 3: Complete the crossword puzzle with the input devices**

## INPUT DEVICES CROSSWORD PUZZLE



**Across**

- 1. select with mouse or keyboard
- 3. new document that you already worked on
- 4. moving the mouse moves this across the screen
- 6. quickly pressing the mouse button once
- 12. plu into an audiojack
- 15. a primary display screen
- 17. random memory restored
- 18. a blinking line found on a computer screen

- 19. a list mof progrtams is often called
- 20. an output device that produces paper copy
- 22. type writer that contains the keys

**Down**

- 2. A long, narrow computer key
- 5. a device can send a picture from piece of paper to a computer screen
- 7. a small picture found on a computer screen

- 8. inserted to USB for storage
- 9. an input device that looks like a typewriter
- 10. a row of selected buttons and icons
- 11. type of stlye and size
- 13. operating system that controls some aspcts of the computer
- 14. device looks like a small animal
- 16. a device for computer games
- 21. memory that is read only

### Language Functions: Describing Features

Different features can be described using verbs and expressions:

**allow sb to-verb, be designed/used to-verb, have, feature, can, cause, connect, control, work/operate (by + -ing)**

An optical mouse **has** an optical sensor instead of a ball underneath.

It usually **features** two buttons and a wheel.

An optical mouse **can** be replaced by a trackball.

A wireless mouse **works/operates** without cables.

A touchpad is a flat surface that **works by detecting** finger contact.

A stylus **causes** a change in capacitance as it presses two thin membranes of the screen together.

A mouse **allows** the user to interact with items on the computer screen.

**Complete the description of the play station with the correct form of verbs describing features and functions. Do not use one word more than once.**

The PlayStation 3 controller is an input device ..... (1) to control video games on the Sony PlayStation 3. It is ..... (2) with both hands and the thumbs are used to handle the direction and action buttons. It ..... (3) a six-axis sensing system, which ..... (4) the users to move the controller in six different directions: up, down, left, right, forwards and backwards. The PS3 controller ..... (5) wirelessly via Bluetooth, but it ..... (6) a USB mini port and USB cable which ..... (7) be connected to the PlayStation for wired play and for charging the internal battery.

**Speaking 1 Work in pairs, A and B. Choose at least three input devices and describe their features and functions. Try to guess which device your partner is describing.**

Student A	Student B
portable media player webcam touchpad wireless mouse trackpoint stylus	trackball microphone joystick graphics tablet scanner touchscreen touchscreen

**In groups, discuss these questions.**

- 1 What are the benefits and possible applications of 3D scanners?
- 2 What kind of tasks would you find speech recognition technology useful for?
- 3 Who would benefit most from advances in speech recognition technology?
- 4 What is the future of speech recognition technology?
- 5 Do you think it will ever be possible to control your computer using only your thoughts?

**Reading**

**Complete the press release with the following words:**

reduction colour megapixels shot video optical brighter

Kodak has introduced the EasyShare M753 digital camera, with 7.0 ..... (1) resolution, a huge 2.5-inch LCD screen, and a professional 3x ..... (2) zoom lens. It is the first camera to incorporate proprietary Kodak Perfect Touch Technology. At the touch of a button, this innovative feature creates better, ..... (3) pictures by bringing out detail in shadows without affecting lighter areas. It's ideal for underexposed pictures caused by shooting beyond the flash range or in adverse lightning condition.

The M753 uses the exclusive Kodak Colour Science chip for phenomenal image quality with rich ..... (4) and accurate skin tones. Seventeen programmed scene modes (e.g. party, fireworks, children) and five colour modes (high, low, natural, sepia, and black and white) help capture the best ..... (5) with the least effort. Other features cropping, auto picture rotation, digital red-eye ..... (6), and blurry picture alert. For capturing more than just still pictures, the camera also features highly-quality (VGA) ..... (7) capture and playback.

#### UNIT 5 WORDLIST

acoustic-to-electric transducer [ə'ku:stɪk tʊ ɪ'lektɪk træns'dju:sə]	акустико-электрический преобразователь
alert [ə'li:t]	предупреждение
alphanumeric group/keyboard [ælfənju:'merɪk gru:p/'ki:bɔ:d]	буквенно-цифровая группа/клавиатура
appliance [ə'plaiəns]	прибор
arrow keys ['ærəʊ ki:s]	клавиши со стрелками
Backspace key ['bækspeɪs ki:]	клавиша удаления
button ['bʌt(ə)n]	кнопка
Caps lock [kæps lɒk]	фиксация регистра прописных букв
convert [kən'veɜ:t]	преобразовать
cordless/wireless mouse ['kɔ:dləs/'waɪələs maʊs]	беспроводная/беспроводная мышь
cursor/navigation keys ['kɜ:sə/ navɪ'geɪʃ(ə)n ki:z]	клавиши курсора/навигации
Delete key [dɪ'li:t ki:]	клавиша удаления
digital camcorder ['dɪdʒɪt(ə)l 'kæmkɔ:də]	цифровая записывающая видеокамера
digital camera ['dɪdʒɪt(ə)l 'kæm(ə)rə]	цифровая камера
digital image ['dɪdʒɪt(ə)l]	цифровое изображение

'ɪmɪdʒ]	
double click ['dʌb(ə)l]	двойной щелчок кнопкой мыши
drag and drop functions [dræg (ə)n drɒp 'fʌŋ(k)ʃ(ə)nz]	функции перетаскивания
editing keys ['editɪŋ]	клавиши редактирования
electronic visual display/monitor [ɪlek'trɒnik 'vɪʒjuəl di'spleɪ/'mɒnɪtə]	электронный визуальный дисплей/монитор
embedded [ɪm'bedɪd]	встроенный
encode [ɪn'kəʊd]	кодировать
Enter key ['entə ki:]	клавиша ввода команды
feature ['fi:tʃə]	особенность
flat surface [flæt 'sɜ:fɪs]	плоская поверхность
function keys ['fʌŋ(k)ʃ(ə)n ki:z]	функциональные клавиши
grab [græb]	схватить
graphical user interface (GUI) ['græfɪk(ə)l 'ju:zə 'ɪntəfeɪs; dʒi:ju:'aɪ]	графический пользовательский интерфейс
graphics tablet ['græfɪks 'tæblɪt]	графический планшет
hand-draw image [hænd drɔ: 'ɪmɪdʒ]	нарисованное от руки
highlight ['haɪlaɪt]	выделить
Home key [həʊm ki:]	кнопка возврата в исходное положение
input device ['ɪnpʊt dɪ'vaɪs]	устройство ввода
Insert key [ɪn'sɜ:t ki:]	клавиша переключения режимов "вставка-замена"
interact [ɪntər'akt]	взаимодействовать
interactive smartboard/whiteboard [ɪntər'æktɪv 'smɑ:tbɔ:d/'waɪtbɔ:d]	интерактивная смарт-доска
interactive table [ɪntər'æktɪv 'teɪb(ə)l]	интерактивная таблица
imaging device ['ɪmɪdʒɪŋ dɪ'vaɪs]	устройство визуализации
joystick ['dʒɔɪstɪk]	джойстик
keyboard shortcuts ['ki:bɔ:d 'ʃɔ:tkʌts]	сочетания клавиш
main keyboard [meɪn 'ki:bɔ:d]	основная клавиатура
mode [məʊd]	режим
modifiers ['mɒdɪfaɪəz]	модификаторы
mouse pad/mousepad	коврик для мыши

[ 'maʊspæd]	мультисенсорные жесты
multi-touch gestures [ 'mʌltitʌtʃ]	цифровая клавиатура
numeric keypad [nju: 'merɪk 'ki:pæd]	
Num lock [ 'nʌm lɒk]	фиксация регистра числовых клавиш;
operate [ 'ɒpəreɪt]	действовать
optical mouse [ 'ɒptɪk(ə)l maʊs]	оптическая мышь
Page up/down key [peɪdʒ ʌp/daʊn ki:]	Клавиша перехода на страницу вверх/вниз
pointing device [ 'pɔɪntɪŋ di'vaɪs]	указывающее устройство [ 'pɔɪntɪŋ di'vaɪs]
pop-up/context/shortcut menu [ 'pɒpʌp/ 'kɒntekst/ 'ʃɔ:tkʌt 'menju:]	всплывающее/контекстное/контекстное меню
portable media player (PMP) [ 'pɔ:təb(ə)l 'mi:diə 'plerə; pi:em pi:]	портативный медиаплеер
proprietary technology [prə 'praɪət(ə)ri tek 'nɒlədʒi]	запатентованная технология
resolution [rezə 'lu:f(ə)n]	разрешение
scan [skæn]	сканировать
scanner [ 'skænə]	сканер
Scroll lock [skrɔ:l lɒk]	блокировка прокрутки
scroll/mouse wheel [skrɔ:l/maʊs wi:l]	прокрутка / колесо мыши
single click [ 'sɪŋg(ə)l klɪk]	один клик
six-axis sensing system [sɪks 'æksɪs sensɪŋ 'sɪstəm]	шестиосевая сенсорная система
space bar/spacebar [ 'speɪsbɑ:]	пробел / пробел
speech recognition [spi:tʃ rekəg 'nɪʃ(ə)n]	распознавание речи
stationary [ 'steɪʃ(ə)n(ə)ri]	стационарный
stream (image) [stri:m]	поток (изображение)
stylus [ 'stɑɪləs]	стилус, перо прибора
system keys [ 'sɪstəm ki:z]	системные ключи
Tab key [tæb ki:]	клавиша табуляции
touchpad [ 'tʌtʃpæd]	сенсорная панель
trackball [ 'trækbɔ:l]	шаровое устройство ввода графической информации;
unsmoothly [ 'ʌnsmu:ðli]	негладко
upside-down [ 'ʌpsaɪd daʊn]	вверх ногами

## UNIT 6

### OUTPUT DEVICES

#### Activity

- 1 How would you define output devices?
- 2 What type of display do you have? Can you describe it?
- 3 How many types of printers do you know? What are they used for?
- 4 Do you prefer built-in or external computer speakers? Why?
- 5 Do you prefer supra-aural headphones or earbuds? Why?

#### Text

##### Monitor

A monitor provides instant feedback by displaying images and text on the screen. Newer monitors, often called **flat-panel displays**, usually have **LCD (Liquid Crystal Display)** or **LED (Light-Emitting Diode)** displays. These are very thin, light in weight and they consume much less power than the older monitors which use **CRT (Cathode-Ray Tube)** displays.

##### Basic Features

Two measurements describe the size of your display: the **aspect ratio** and the ..... (1). Historically, computer displays, like most televisions, have had an aspect ratio of 4:3 – the width of the screen to the height is four to three. For widescreen LCD displays, the aspect ratio is 16:9, very useful for viewing DVD movies, playing games and displaying multiple windows side by side, High-definition TV also uses this format. The viewable **screen size** is measured **diagonally** ..... (2), so a 19” screen measures 19” from the top left to the bottom right.

The **resolution** (the clarity of the image) of the monitor is usually quoted as **width x height**, with the units ..... (3). The resolution depends on the number of pixels. **Pixels** (short for picture elements) are the small dots that make of the image displayed on the screen. For example, ‘1024 × 768’ means the width is 1024 pixels and the height is 768 pixels. This example would normally be spoken as ‘ten twenty-four by seven sixty-eight’ or ‘ten twenty-four by seven six eight’. The sharpness of images is affected by **dot pitch** also called **phosphor pitch**, the distance between the pixels on the screen, so a dot pitch of 0.28 mm or less will produce a sharp image.

**Brightness** is the luminance of images that is measured in cd/m<sup>2</sup> (candela per square metre).

**Colour depth** refers to the number of colours a monitor can display. This depends on the number of bits used to describe the colour of a single pixel. For example, an old **Video Graphics Array (VGA)** monitor with an 8-bit depth can generate 256 colours and a Super VGA with a 25-bit depth can generate

16.7 million colours. Monitors with a 32-bit depth are used in digital video, animation and video games to get certain effects.

**Refresh rate** is the number of times that the image is drawn each second. If a monitor has a refresh rate of 75 Hz, it means that the screen is scanned 75 times per second. If this rate is low, you will notice a flicker, which can cause eye fatigue.

Inside the computer there is a **video adapter**, or graphics card, which processes images and sends signals to the monitor. CRT monitors use a **Video Graphics Array (VGA)** cable, which converts digital signals into analogue signals. LCD monitors use a **Digital Visual Interface (DVI)** connection. Computers can be connected to ..... (4), which project the image onto a large screen. They are used for presentations and home theatre applications.

#### **Display technologies**

The **CRT** of a monitor has three **electron guns** (one for primary colour: red, green and blue) that strike inside of the screen, which is coated with substances called **phosphors**, which glow and create a visible image. CRTs are relatively cheap, but they are heavy, can ..... (5) and emit radiation.

An **LCD** is made from flat plates with a liquid crystal solution between them. The crystals block the light in different quantities to create the image. **Active-matrix LCDs** use **thin-film transistor (TFT)** technology, in which each pixel has its own switch. The amount of light the LCD monitor produces is called brightness or luminance, measured in cd/m<sup>2</sup> (candela per square metre).

In a **plasma screen**, images are created by a plasma discharge which contains noble (non-harmful) gases. Plasma TVs allow for larger screens and wide viewing angles, making them ideal for movies.

A **Light-Emitting Diode (LED)** display is a flat panel display, which uses an array of light-emitting diodes as pixels for a video display.

**Organic Light-Emitting Diodes (OLEDs)** are thin-film LED displays that don't require a backlight to function. The material emits light when stimulated by an electrical current, which is known as electroluminescence. They consume less energy, produce brighter colours and are flexible – i.e. they can be bent and rolled up when they're not being used.

#### **Printer**

A printer is an output device which takes digital information, such as pictures or documents, and prints it on paper. Nowadays it is common for a printer to also be a scanner and photocopier, giving the home-user a very powerful all-in-one tool. Printers vary in cost, speed, print quality, and other factors such as noise or printing method. Technology is evolving so quickly that there is always a printer for every application or need.

**Dot-matrix** printers use pins to print the dots required to shape a character. They can print text and graphics; however, they produce relatively low-resolution output – 72 to 180 dots per inch (dpi). They are used to print



**multi-part forms, self-copying paper** and **continuous-form labels**. They are slower than laser printers but usually cheaper.

**Inkjet** printers operate by projecting small ..... (6) onto paper to form the required image. Colour and hues are created by the precise mixing of **cyan, magenta**, yellow and black inks, inkjets are fairly fast, quiet, and not as expensive as laser printers. Nevertheless, you can still expect high quality results because there are some inkjet printers on the market with a resolution of 2,400 dpi.

**Laser** printers, invented in 1976, very rapidly produce high-quality text, graphics and photographs by repeatedly passing a ..... (7) back and forth over an electron-charged, cylindrical drum, to define a **differentially-charged** image. They produce output at great speed and with a very high resolution of 1,200- 2,400 dpi. They scan the image with a laser beam and transfer it to paper with a special ink powder called toner. They are constantly being improved. In terms of speed and image quality; laser printers are preferred by experts for various reasons; for instance, they have a wider range of **scalable fonts** than inkjets, can ..... (8) different language systems and can produce high-quality graphics.

**Thermal transfer** printers are used to produce colour images by transferring a wax-based ink onto the paper. They are popular for printing bar codes, labels and medium-resolution graphics.

**Imagesetters** produce very high-resolution output (up to 3,540 dpi) on paper or on the actual film for making the **printing plates**. In addition, they are extremely fast. Imagesetters are most often used in **desktop publishing (DTP)**. Although they produce the highest quality output, they have one important disadvantage: they are too expensive for homes or small offices.

In modern ..... (9), images are created on a DTP computer and then output directly to the printing plates, without requiring film as an intermediate step. This technology is called **computer to plate (CTP)**, and the machine used is called a **platesetter**.

**Plotters** use ink and fine pens held in a ..... (10) to draw very detailed designs on paper. They are used for construction plans, engineering drawings and other technical illustrations. Nowadays, traditional plotters are being replaced with wide-format inkjets.

**3D printers** are used for **additive manufacturing (AM)** to synthesize three-dimensional objects. In additive manufacturing processing, **successive layers** of material are formed under computer control to create the object. These objects can be of almost any shape or geometry and are produced from digital model data 3D model or other electronic data source such as an **Additive Manufacturing File (AMF)**. **3D printers** are used in medicine, engineering, architecture, art and consumer industry.

**Speakers and headphones**

Speakers and headphones are devices that allow a user to hear sound and music. Depending on the model, they may connect to the **audio port** or the USB port. Some monitors also have **built-in speakers**.

**Task 1: Read the text and fill the gaps (1 – 10) with the words (A – J).**

- A in inches
- B lithographic printing
- C ink droplets
- D video projectors
- E carriage
- F flicker
- G laser beam
- H in pixels
- I emulate
- J screen size

**Task 2: Decide whether these statements are true (T) or false (F).**

- 1 ..... The images shown on a monitor are generated by the video card.
- 2 ..... The size of the screen is measured horizontally.
- 3 ..... The aspect ratio describes the proportional relationship between its width and its height.
- 4 ..... Higher resolutions result in more pixels per row.
- 5 ..... Brightness of a display is measured in candelas per pixel.
- 6 ..... Three electron guns in a CRT display, one each for red, green, and blue phosphors, paint the screen.
- 7 ..... An architect would be most likely to use an inkjet printer to print large plans.
- 8 ..... The most suitable printer for printing barcode labels is an imagesetter.
- 9 ..... A plotter would be the most suitable printer for printing a large number of high quality black and white printouts.
- 10 ..... The most suitable printer for printing a wage slip using carbonised paper is a dot matrix printer.

**Vocabulary Practice**

**Task 1: Find the words in the text according to these definitions.**

- 1 ..... the smallest unit on a display screen or bitmapped image (usually a coloured dot)
- 2 ..... an expansion card that generates the video signal sent to a computer display

- 3 ..... the width of the screen in proportion to its height
- 4 ..... also called 'gas discharge display'
- 5 ..... the number of pixels contained in a display, horizontally and vertically
- 6 ..... the number of bits used to hold a colour pixel; this determines the maximum number of colours that can be displayed
- 7 ..... designs and images used in magazines, books, etc.
- 8 ..... output quality of dot-matrix and laser printers, measured in dots per inch
- 9 ..... a particular colour within the colour spectrum
- 10 ..... an ink powder used in laser printers and copiers
- 11 ..... set of characters that can be resized (enlarged or reduced) without introducing distortion
- 12 ..... a rectangular pattern of black lines of magnetic ink printed on an object so that its details can be read by a computer system
- 13 ..... surface that carries a reproduction of the images from which the pages are printed
- 14 ..... the creation of documents using page layout software on a personal computer
- 15 ..... included as part of something and not separate from it.

### Speaking 1

Task 1: In pairs, describe the 'home cinema' of your dreams. The following ideas may help you:

- Type of display
- Type of LCD panel
- Screen size
- Display resolution
- Brightness
- Refresh rate
- Response time
- Video source (DVD/Blu-ray Disk recorder)
- Sound capabilities
- Other

### Language Functions: Giving Advice and Instructions

**Use imperative or should/shouldn't to give instructions:**

**Don't put** your monitor in front of a window.

You **shouldn't** use a monitor that's fuzzy or distorts the image.

Use the following expressions and verbs to provide extra information:

remember, be careful (not) to, try (not) to, it's important to, it helps to, be sure to, you need to, check, make sure, proceed, continue, always..., never...

attach, connect, disconnect, turn on/off, switch on/off, take sth off, remove, take sth out, plug sth in, put sth back, replace, unplug

Task: In pairs, give your partner instructions using the above-mentioned expressions, verbs and sequence connectors (see page).

Student A: Using a 3D printer.

Student B: Using a scanner.

### Speaking 2

In groups, discuss the possible problems that 4D printing technology can encounter.

## UNIT 6 WORDLIST

3D printer [θri:di: printə]	3D-принтер
active-matrix LCD ['æktiv 'metriks elsi:'di:]	ЖК-дисплей с активной матрицей
additive manufacturing (AM) ['æditiv mænju'fæktʃəriŋ; ei'em]	аддитивное производство
aspect ratio ['æspekt 'reɪʃiəʊ]	соотношение сторон
audio port ['ɔ:diəʊ pɔ:t]	аудио порт
bar code/barcode [ba:'kəʊd]	штрих-код/штрих-код
brightness ['braɪtnəs]	яркость
built-in speakers [bilt'in 'spi:kəs]	встроенные динамики
Cathode-Ray Tube (CRT) ['kæθəʊd rei tju:b; si:ɑ:'ti:]	электронно-лучевая трубка
coated ['kəʊtɪd]	с покрытием
colour ['kʌlə]	цвет
computer to plate (CTP) [kəm'pjʊ:tə tu pleɪt; si:ti:'pi:]	вывод изображения из компьютера на формную пластину
crosshair ['krɒsheə]	перекрестие
cyan ['saɪən]	светло-голубой
diagonally [daɪ'ægənli]	по диагонали
differentially-charged image [dɪfə'ren(t)ʃəli tʃɑ:dʒd 'ɪmɪdʒ]	дифференциально заряженное изображение
Digital Visual Interface (DVI) ['dɪdʒɪtl 'vɪz(u)əl 'ɪntəfeɪs; di:vi:ai]	цифровой визуальный интерфейс
dot-matrix printer [dɒt'metrix]	матричный принтер

'prɪntə] dot/phosphor pitch [dɒt/'fɒsfə pɪtʃ]	размер точки экрана / люминофорный элемент
electroluminescence [əlekt'rəʊlu:mɪ'nesəns]	электролюминесценция
electron gun/emitter [ə'lektrən gʌn/ə'mɪdə]	электронная пушка/излучатель
emit [ə'mɪt]	излучать
flashcard slot ['flæʃ kɑ:d slɒt]	слот для карт памяти
flicker ['flɪkə]	мерцание
headphones ['hedfəʊnz]	наушники
height [haɪt]	высота
High-Definition Multimedia Interface (HDMI) [haɪ defɪ'nɪʃn mʌltɪ'mɪ:diə'ɪntəfeɪs]	интерфейс для мультимедиа высокой чёткости
High Dynamic Range (HDR) [haɪ daɪ'næmɪk reɪndʒ]	расширенный динамический диапазон
hue [(h)ju]	оттенок
imagesetter ['ɪmɪdʒsetə]	система воспроизведения изображений
ink droplet [ɪŋk 'drɒplɪt]	капля чернил
inkjet printer ['ɪŋkdʒet 'prɪntə]	струйный принтер
In-Plane Switching (IPS) [ɪn'pleɪn 'swɪtʃɪŋ]	планарная коммутация
label ['leɪbəl]	ярлык
laser beam ['leɪzə bi:m]	лазерный луч
laser printer ['leɪzə 'prɪntə]	лазерный принтер
Light-Emitting Diode (LED) [laɪt ə'mɪtɪŋ 'daɪoʊd; eli:'di]	светоизлучающий диод
Liquid Crystal Display (LCD) ['lɪkwɪd 'krɪstl 'daɪoʊd; elsi:'di:]	жидкокристаллический дисплей
lithographic printing [lɪθə'græfɪk 'prɪntɪŋ]	литографическая печать
luminance ['lu:mɪn(ə)ns]	мера яркости видеосигнала
magenta [mæ'dʒentə]	пурпурный
monitor ['mɒnɪtə]	монитор
multi-part forms ['mʌltɪ pɑ:t]	многосоставные формы
Organic Light-Emitting Diode (OLED) [ɔ:g'gænɪk laɪt ə'mɪtɪŋ 'daɪoʊd; ʊʊled]	органический светоизлучающий диод
output device ['aʊtpʊt dɪ'vaɪs]	устройство вывода
phosphor ['fɒsfə]	люминофор
photocopier ['fəʊdɒkəpiə]	ксерокс
pixel ['pɪks(ə)l]	пиксель

plasma screen ['plæzmə skri:n]	плазменный экран
plotter ['plɒtə]	плоттер
printer ['prɪntə]	принтер
refresh rate [rɪ'freʃ reɪt]	частота обновления
resolution [rezə'lu:ʃ(ə)n]	разрешение
Republic of Gamers [rɪ'pʌblɪk əv 'geɪmərs]	Республика Геймеров
scalable font ['skeɪləb(ə)l fɒnt]	масштабируемый шрифт
screen size ['skri:n saɪz]	размер экрана
self-copying paper ['selfkɒpɪŋ]	самокопирующая бумага
speaker ['spi:kə]	диктор (в системах распознавания речи)
subwoofer ['sʌbwʊfə]	сабвуфер
successive layers [sək'sesɪv 'leɪəz]	последовательные слои
surround sound system [sə'raʊnd saʊnd 'sɪstəm]	система объемного звучания
switch [swɪtʃ]	параметр; свитч
thermal transfer printer ['θɜ:m(ə)l 'trænzfɜ: 'prɪntə]	термографическое печатающее устройство с подачей красящего вещества
thin-film transistor (TFT) ['θɪnfɪlm træn'sɪstə; 'ti:ef'ti:]	тонкопленочный транзистор
toner ['təʊnə]	тонер
three-dimensional [θri: dɪ'menʃ(ə)n(ə)l/dɑ: 'menʃ(ə)n(ə)l]	трехмерный
video adapter ['vɪdɪəʊ ə'dæptə]	видеоадаптер
Video Graphics Array (VGA) ['vɪdɪəʊ 'græfɪks ə'reɪ; vɪ:di:ɑ:]	матрица видеогарфики
wax-based ['wæksbeɪst]	на основе воска
width [wɪdθ]	ширина

## CONCLUSION

Дорогие студенты! Вот вы и закончили работу над нашим пособием. Авторы постарались вместе с вами преодолеть путь от простого к более сложному, от обыденного языка к специальной и профессиональной лексике, от простого запоминания к свободному владению языком через логично взаимосвязанные уроки.

Постепенно, с учетом принципа повторяемости лексики, от задания к заданию (а в этом кроется залог запоминания вокабуляра и понимание терминосистемы!), вы продвигались к достижению цели настоящего пособия - научиться адекватно переводить современные профессионально ориентированные, компетентно излагать полученную информацию на английском языке.

Но ваш последний урок – это не конец обучения профессиональному английскому языку. Вы можете теперь самостоятельно активизировать приобретенные навыки и умения, идти дальше по пути углубления ваших знаний. Говорение, чтение, аудирование на иностранном языке не должны прерываться. И коллектив авторов желает вам пользоваться любыми возможностями, чтобы практиковаться и узнавать новое. Современный профессионал может и должен владеть иностранными языками, это поможет ему обеспечить успех в карьере, в профессиональной коммуникации, в знакомстве с технологическими инновациями.

**УДАЧИ ВАМ В ВАШЕМ  
ПРОФЕССИОНАЛЬНОМ РОСТЕ!**

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## IRREGULAR VERBS

Infinitive	Past simple	Past participle	Перевод
abide	abode; abided	abode; abided	пребывать; держаться
arise	arose	arisen	подняться; возникнуть
awake	awoke	awaked; awoke	будить; проснуться
backbite	backbitten	backbitten	клеветать
backslide	backslid	backslid	отпадать
be	was; were	been	быть
bear	bore	born; borne	родить
beat	beat	beaten	бить
become	became	become	становиться
befall	befell	befallen	случиться
beget	begot; begat	begotten	порождать
begin	began	begun	начинать
begird	begirt	begirt	опаивать
behold	beheld	beheld	зреть
bend	bent	bent; bended	наклоняться (в стороны)
bereave	bereft; bereaved	bereft; bereaved	лишать
beseech	besought; beseached	besought; beseached	умолять; упрашивать
beset	beset	beset	осаждать
bespeak	bespoke	bespoke; bespoken	заказывать
bespit	bespat	bespat	заплевывать
bestride	bestrode	bestridden	садиться; сидеть верхом
bet	bet; betted	bet; betted	держаться пари
betake	betook	betaken	приниматься; отправляться
bid	bad; bade; bid	bid; bidden	велеть; просить
bind	bound	bound	связать
bite	bit	bit; bitten	кусать
bleed	bled	bled	кровоточить
bless	blessed	blessed; blest	благословлять
blow	blew	blown; blowed	дуть
break	broke	broken	(с)ломать
breed	bred	bred	выращивать
bring	brought	brought	приносить
broadcast	broadcast	broadcast	распространять; разбрасывать
browbeat	browbeat	browbeaten	запугивать
build	built	built	строить
burn	burnt; burned	burnt; burned	жечь; гореть
burst	burst	burst	разрваться; взорваться
bust	bust; busted	bust; busted	разжаловать
buy	bought	bought	покупать
can	could	could	мочь; уметь
cast	cast	cast	кинуть; лить металл

catch	caught	caught	ловить, хватать, успеть
chide	chid; chided	chid; chided; chidden	бранить
choose	chose	chosen	выбирать
cleave	clove; cleft; cleaved	cloven; cleft; cleaved	рассечь
cling	clung	clung	цепляться; лнуть
come	came	come	приходить
cost	cost	cost	стоить
countersink	countersank	countersunk	зенковать
creep	crept	crept	ползти
crow	crowed; crew	crowed	петь (о петухе)
cut	cut	cut	резать
dare	durst; dared	dared	сметь
deal	dealt	dealt	иметь дело
dig	dug	dug	копать
dive	dived; dove	dived	нырять; погружаться
do	did	done	делать
draw	drew	drawn	рисовать, тащить
dream	dreamt; dreamed	dreamt; dreamed	грезить; мечтать
drink	drank	drunk	пить
drive	drove	driven	водить (машину etc.)
dwell	dwelt	dwelt	обитать; задерживаться
eat	ate	eaten	кушать; есть
fall	fell	fallen	падать
feed	fed	fed	кормить
feel	felt	felt	чувствовать
fight	fought	fought	сражаться; бороться
find	found	found	находить
fit	fit	fit	подходить по размеру
flee	fled	fled	бежать; спастись
fling	flung	flung	бросить
floodlight	floodlighted; floodlit	floodlighted; floodlit	освещать прожектором
fly	flew	flown	летать
forbear	forbore	forborne	воздерживаться
forbid	forbad; forbade	forbidden	запрещать
forecast	forecast; forecasted	forecast; forecasted	предсказывать
foresee	foresaw	foreseen	предвидеть
foretell	foretold	foretold	предсказывать
forget	forgot	forgotten	забывать
forgive	forgave	forgiven	прощать
forsake	forsook	forsaken	покидать

forswear	forswore	forsworn	отрекаться
freeze	froze	frozen	замерзать
gainsay	gainsaid	gainsaid	отрицать; противоречить
get	got	got	получать
gild	gilt; gilded	gilt; gilded	позолотить
gird	girded; girt	girded; girt	опоясывать
give	gave	given	давать
go	went	gone	идти
grave	graved	graved; graven	гравировать
grind	ground	ground	точить; молоть
grow	grew	grown	расти
hamstring	hamstrung; hamstrung	hamstrung; hamstrung	подрезать поджилки
hang	hung; hanged	hung; hanged	вешать
have	had	had	иметь
hear	heard	heard	слушать
heave	heaved; hove	heaved; hove	поднимать(ся)
hew	hewed	hewed; hewn	рубить; тесать
hide	hid	hidden	прятать(ся)
hit	hit	hit	ударять; попадать в цель
hold	held	held	держать
hurt	hurt	hurt	причинить боль
inlay	inlaid	inlaid	вкладывать; выстилать
input	input; inputted	input; inputted	входить
inset	inset	inset	вставлять; вкладывать
interweave	interwove	interwoven	воткать
keep	kept	kept	хранить; содержать
ken	kenned; kent	kenned	знать; узнавать по виду
kneel	knelt; kneeled	knelt; kneeled	стоять на коленях
knit	knit; knitted	knit; knitted	вязать
know	knew	known	знать
lade	laded	laded; laden	грузить
lay	laid	laid	класть; положить
lead	led	led	вести
lean	leant; leaned	leant; leaned	опираться; прислоняться
leap	leapt; leaped	leapt; leaped	прыгать
learn	learnt; learned	learnt; learned	учить
leave	left	left	оставить
lend	lent	lent	одалживать
let	let	let	позволять
lie	lay	lain	лежать
light	lit; lighted	lit; lighted	освещать
lose	lost	lost	терять
make	made	made	делать; производить



may	might	might	мочь; иметь возможность
mean	meant	meant	подразумевать
meet	met	met	встретить
miscast	miscast	miscast	неправильно распределять роли
misdeal	misdealt	misdealt	поступать неправильно
misgive	misgave	misgiven	внушать опасения
mishear	misheard	misheard	ослышаться
mishit	mishit	mishit	промахнуться
mislay	mislaid	mislaid	класть не на место
mislead	misled	misled	ввести в заблуждение
misread	misread	misread	неправильно истолковывать
misspell	misspelt; misspeled	misspelt; misspeled	писать с ошибками
misspend	misspent	misspent	экономить
mistake	mistook	mistaken	ошибаться
misunderstand	misunderstood	misunderstood	неправильно понимать
mow	mowed	mown; mowed	косить
outbid	outbid	outbid	перебивать цену
outdo	outdid	outdone	превосходить
outfight	outfought	outfought	побеждать (в бою)
outgrow	outgrew	outgrown	вырастать из
output	output; outputted	output; outputted	выходить
outrun	outran	outran	перегонять; опережать
outsell	outsold	outsold	продавать лучше или дороже
outshine	outshone	outshone	затмевать
overbid	overbid	overbid	повелевать
overcome	overcame	overcome	компенсировать
overdo	overdid	overdone	пережари(ва)ть
overdraw	overdrew	overdrawn	превышать
overeat	overate	overeaten	объедаться
overfly	overflew	overflown	перелетать
overhang	overhung	overhung	нависать
overhear	overheard	overheard	подслуш(ив)ать
overlay	overlaid	overlaid	покры(ва)ть
overpay	overpaid	overpaid	переплачивать
override	overrode	overridden	отвергать; отклонять
overrun	overran	overrun	переливаться через край
oversee	oversaw	overseen	надзирать за
overshoot	overshot	overshot	расстрелять
oversleep	overslept	overslept	прос(ы)пать
overtake	overtook	overtaken	догонять
overthrow	overthrew	overthrown	свергать
partake	partook	partaken	принимать участие

pay	paid	paid	платить
plead	pleaded; pled	pleaded; pled	обращаться к суду
prepay	prepaid	prepaid	платить вперед
prove	proved	proved; proven	доказывать; оказаться
put	put	put	класть
quit	quit; quitted	quit; quitted	покидать; оставлять; выходить
read	read; red	read; red	читать
rebind	rebound	rebound	перевязывать
rebuild	rebuilt	rebuilt	перестроить
recast	recast	recast	видоизменять; преобразовывать
redo	redid	redone	повторять сделанное
rehear	reheard	reheard	слушать вторично
remake	remade	remade	переделывать
rend	rent	rent	раздирать
repay	repaid	repaid	отдавать долг
rerun	reran	rerun	выполнять повторно
resell	resold	resold	перепродавать
reset	reset	reset	возвращать
resit	resat	resat	пересиживать
retake	retook	retaken	забирать
retell	retold	retold	пересказывать
rewrite	rewrote	rewritten	пере(за)писать
rid	rid; rided	rid; rided	избавлять
ride	rode	ridden	ездить верхом
ring	rang	rung	звонить
rise	rose	risen	подняться
rive	rived	riven	расщеплять
run	ran	run	бежать; течь
saw	sawed	sawn; sawed	пилить
say	said	said	говорить; сказать
see	saw	seen	видеть
seek	sought	sought	искать
sell	sold	sold	продавать
send	sent	sent	посылать
set	set	set	ставить; устанавливать
sew	sewed	sewed; sewn	шить
shake	shook	shaken	трясти
shave	shaved	shaved; shaven	брить(ся)
shear	sheared	shorn; sheared	стричь
shed	shed	shed	проливать
shine	shone; shined	shone; shined	светить; сиять
shoe	shod	shod	обувать; подковывать
shoot	shot	shot	стрелять; давать победы
show	showed	shown; showed	показывать

shred	shred; shredded	shred; shredded	кромсать; расползаться
shrink	shrank; shrunk	shrunk	сокращаться; сжиматься; отпрянуть
shrive	shrove; shrived	shriven; shrived	исповедовать
shut	shut	shut	закрывать
sing	sang	sung	петь
sink	sank	sunk	опускаться; погружаться; тонуть
sit	sat	sat	сидеть
slay	slew	slain	убивать
sleep	slept	slept	спать
slide	slid	slid	скользить
sling	slung	slung	швырять; подвешивать
slink	slunk	slunk	идти крадучись
slit	slit	slit	раздирать(ся); разрезать (вдоль)
smell	smelt; smelled	smelt; smelled	пахнуть; нюхать
smite	smote	smitten	ударять; разбивать
sow	sowed	sowed; sown	(по)сеять
speak	spoke	spoken	говорить
speed	sped; speeded	sped; speeded	ускорять; спешить
spell	spelt; spelled	spell; spelled	писать или читать по буквам
spend	spent	spent	тратить
spill	spilt; spilled	spilt; spilled	проливать
spin	spun; span	spun	прясть
spit	spat; spit	spat; spit	плевать
split	split	split	расщепить(ся)
spoil	spoil; spoiled	spoil; spoiled	портить
spotlight	spotlit; spotlighted	spotlit; spotlighted	осветить
spread	spread	spread	распространиться
spring	sprang	sprung	вскочить; возникнуть
stand	stood	stood	стоять
stave	staved; stove	staved; stove	проламывать; разби(ва)ть
steal	stole	stolen	красть
stick	stuck	stuck	уколоть; приклеить
sting	stung	stung	жалить
stink	stank; stunk	stunk	вонять
strew	strewed	strewn; strewed	усеять; устлать
stride	strode	stridden	шагать; наносить удар
strike	struck	struck	ударить; бить; бастовать
string	strung	strung	нанизать; натянуть
strive	strove	striven	стараться
sublet	sublet	sublet	передавать в субаренду
swear	swore	sworn	(по)клясться; присягнуть
sweep	swept	swept	мести; промчаться



swell	swelled	swollen; swelled	разбухать
swim	swam	swum	плавать
swing	swung	swung	качаться
take	took	taken	взять; брать
teach	taught	taught	учить
tear	tore	torn	рвать
tell	told	told	рассказывать; сказать
think	thought	thought	думать
thrive	throve; thrived	thriven; thrived	процветать
throw	threw	thrown	бросить
thrust	thrust	thrust	толкнуть; сунуть
tread	trod	trod; trodden	ступать
unbend	unbent	unbent	разогнуть(ся)
underbid	underbid	underbid	снижать цену
undercut	undercut	undercut	сбивать цены
undergo	underwent	undergone	проходить; подвергаться
underlie	underlay	underlain	лежать в основе
underpay	underpaid	underpaid	оплачивать слишком низко
undersell	undersold	undersold	продавать дешевле
understand	understood	understood	понимать
undertake	undertook	undertaken	предпринять
underwrite	underwrote	underwritten	подписыва(ть)ся
undo	undid	undone	уничтожать сделанное
unfreeze	unfroze	unfrozen	размораживать
unsay	unsaid	unsaid	брать назад свои слова
unwind	unwound	unwound	развертывать
uphold	upheld	upheld	поддерживать
upset	upset	upset	опрокинуть(ся)
wake	woke; waked	woken; waked	просыпаться; будить
waylay	waylaid	waylaid	подстергать
wear	wore	worn	носить (одежду)
weave	wove; weaved	woven; weaved	ткать
wed	wed; wedded	wed; wedded	выдавать замуж
weep	wept	wept	плакать
wet	wet; wetted	wet; wetted	мочить; увлажнять
win	won	won	выигрывать
wind	wound	wound	заводить (механизм)
withdraw	withdrew	withdrawn	взять назад; отозвать
withhold	withheld	withheld	удерживать
withstand	withstood	withstood	противиться
work	worked; wrought	worked; wrought	работать
wring	wrung	wrung	скрутить; сжать
write	wrote	written	писать

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**ГЛИВЕНКОВА Ольга Анатольевна**  
**ЕВЕНКО Елена Викторовна**  
**КОПЕЛЬНИК Владислава Игоревна**

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Редактор И. В. Калистратова  
Дизайн, структура, навигация В. Е. Красильникова  
Обложка, упаковка, тиражирование Т. Ю. Зотовой

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Издательский центр ФГБОУ ВО «ТГТУ»  
392000, г. Тамбов, ул. Советская, д. 106, к. 14  
Телефон: (4752) 63-81-08  
E-mail: izdatelstvo@tstu.ru