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ENGLISH FOR MASTER'S STUDENTS

Учебное пособие

для студентов направлений магистратуры
01.04.02 «Прикладная математика и информатика»,
09.04.01 «Информатика и вычислительная техника», 09.04.04 «Программная инженерия»,
11.04.04 «Электроника и наноэлектроника»

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От авторов

Настоящее учебное пособие составлено на основе требований федеральных государственных образовательных стандартов высшего образования (ФГОС ВО) для студентов направлений магистратуры 01.04.02 «Прикладная математика и информатика», 09.04.01 «Информатика и вычислительная техника», 09.04.04 «Программная инженерия», 11.04.04 «Электроника и наноэлектроника».

Основная цель учебного пособия – формирование у студентов общекультурных и профессиональных компетенций, необходимых для социального и профессионального взаимодействия.

При разработке учебного материала авторы учитывали необходимость повторения и обобщения основных грамматических и лексических явлений, изученных на базовом курсе.

Тексты пособия отобраны с учетом их информативности и соответствия последним достижениям науки и техники и представлены по принципу постепенного усложнения языкового материала и тематики.

Настоящее учебное пособие состоит из 6 блоков (units):

Unit 1. Earning a Degree
Unit 2. Most Famous
Unit 3. Gadgets
Unit 4. The Internet
Unit 5. Information Security
Unit 6. Computer-Aided Design - CAD

В конце пособия имеется Приложение (**Appendix**), которое включает в себя таблицы основных способов словообразования.

Условные обозначения:

– тексты для чтения

– устные упражнения

– упражнения на аудирование

– письменные упражнения

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Unit 1. EARNING A DEGREE

Text A	**Master of Engineering**
Text B	**Master of Internet Engineering**
Listening:	**University College London**
Grammar:	**Present Simple and Present Progressive Tenses, Conditionals I, Past Simple and Present Perfect Tenses**

Text A

MASTER OF ENGINEERING

1.1. Read the following words and expressions and try to guess their meaning.

Professional, practical analysis, theory, type, Australia, student, engineer, industry, university, program, qualification, equivalent, traditional, course, innovative, problem, sector, energy, architectural, economic, political, perspective, college, London, biological, biomechanics, biomaterials, medical physics, neurotechnology, specialization, mathematics, discipline, basis, individual course, physical, module, examination results, candidate, project.

1.2. Read the following words and mind their pronunciation.

qualify	['kwɔlɪfaɪ]	expert	['ekspɜːt]
Australia	[ɔs'treɪlɪə]	petroleum	[pə'trəulɪəm]
Melbourne	['melbən]	issue	['ɪʃuː], ['ɪsjuː]
variety	[və'raɪətɪ]	discipline	['dɪsəplɪn]

Memorize the following words and expressions

academic degree	*ученая степень*	**chartered engineer**	*дипломированный инженер*
thesis	*диссертация*	**undergraduate**	*студент*
to qualify	*готовить (кого-л. к какой-л. деятельности)*	**postgraduate courses**	*курсы усовершенствования специалистов*
to require	*требовать*	**to study abroad**	*учиться за рубежом*
bachelor	*бакалавр*	**to explore**	*исследовать; изучать*
approach	*подход к чему-л.*	**to offer**	*предлагать*

1.3. Read the text.

MASTER OF ENGINEERING

A Master of Science degree in engineering is an academic degree to be differentiated from a Master of Engineering degree. A Master of Science degree in engineering can require completion of a thesis and qualifies the holder to apply for a program leading to a Doctor of Philosophy degree in engineering. A Master of Engineering degree requires completion of a project and does not qualify its holder to apply for a Ph.D. in engineering.

The types of engineering degree available to you will partly be determined by the country and the institution in which you have chosen to study.

For example, the Master of Engineering degree in Australia is a two- to three-year research degree with an end-of-year thesis, while in the US and Canada a Master of Engineering is a two-year professional degree taken after a four-year bachelor's degree in engineering. In the UK the four-year postgraduate Masters in Engineering (MEng) is designed to prepare students to become chartered engineers, and may extend to five years for students to spend a year in industry. Some universities in the UK now also offer Doctor of Engineering (EngD) programs. These lead to a qualification equivalent to a PhD, but take a research-focused industry approach, rather than the traditional academic approach.

There is huge variety in postgraduate courses within engineering, with each institution offering a range of highly specialized courses designed to create experts in the field in question. For example, Australia's University of Melbourne offers a master's program which explores innovative, sustainable solutions to environmental problems in engineering sectors, while the US's University of Texas at Austin provides a petroleum engineering degree focused on energy issues. Alternatively, the Netherlands' Eindhoven University of Technology offers an architectural engineering degree incorporating economic, legal, political and environmental perspectives, while the UK's Imperial College London offers an MSc in Biological Engineering with four separate streams: biomechanics, biomaterials, medical physics and neurotechnology.

Entry requirements will vary depending on the institution and the type of engineering degree and specialization you choose. Most master's in engineering degrees require strong grades at undergraduate level, preferably in a relevant science, mathematics, computer science or engineering discipline.

You may also be accepted on the basis of individual courses you have studied, with a particularly high value placed on mathematics, physical science and engineering modules. You may need to provide Graduate Record Examinations (GRE) results to prove you are ready for postgraduate-level study. Of course, if you're studying abroad, you'll need to prove your competency in the language of study.

Some master's degrees with a more professional focus may require candidates to have been employed in the relevant engineering field, while many offer opportunities to undertake workplace projects as part of the program.

Sources:
http://www.topuniversities.com/courses/engineering/grad/guide
https://en.wikipedia.org/wiki/Master_of_Science_in_Engineering

Notes to the text

Master of Engineering	*магистр инженерного дела*
Master of Science	*магистр технических наук*
Doctor of Philosophy	*доктор философии (степень, которая присуждается как в области естественных, так и гуманитарных наук)*
Graduate Record Examinations (GRE)	*тесты для поступающих в магистратуру*

1.4. Match the terms with their definitions.

1. undergraduate	a) an official document gained by successfully completing a course at university or college
2. requirement	b) a person who has a first university degree
3. thesis	c) to have or give somebody the right to have or do something
4. competency	d) a long piece of writing on a particular subject that you do as part of a university degree
5. degree	e) a way of dealing with somebody / something
6. discipline	f) fully trained; qualified
7. to qualify	g) something that you need or that you must do or have
8. bachelor	h) a university student who has not yet taken their first degree
9. approach	i) a branch of knowledge, typically one studied in higher education
10. chartered	j) the fact of having the ability or skill that is needed for something

1.5. Fill in the sentences with the words from the table above. Put the words into the right form if necessary.

1. He did his … on Japanese investment in Europe.
2. This exam will … me to teach music.
3. He quickly proved his … in his new position.
4. Sociology is fairly new … .
5. Many of our students study as … and post-graduates abroad.
6. He is a mechanical engineer and a … accountant by qualification.
7. She's got a … in Philosophy.
8. Parents don't always know what … to take with teenage children.
9. This candidate does not meet the … that secondary school should be completed.
10. Palmer is a 1997 graduate of Ohio State university with a … degree in nursing.

1.6. Find the words in the text with the opposite meaning.

1. inexperienced
2. graduate
3. at home
4. to lessen
5. uncommon
6. to exclude
7. unfulfillment
8. to be unprepared

1.7. Match the words in columns A and B to make phrases (according to the text) and translate them.

A	B
1. entry	a) degree
2. chartered	b) abroad
3. Graduate	c) approach
4. completion	d) Engineering
5. to study	e) of a project
6. postgraduate	f) requirements
7. industry	g) engineer
8. academic	h) experts
9. to create	i) courses
10. Master of	j) Record Examinations

1.8. In the text find the English equivalents of the following words. The number of the lines is equal to the number of the letters to insert.

1. кандидат	a) c _ _ _ _ _ _ _ _
2. компетенция	b) c _ _ _ _ _ _ _ _ _
3. перспектива	c) p _ _ _ _ _ _ _ _ _ _
4. степень	d) d _ _ _ _ _
5. уместный	e) r _ _ _ _ _ _ _
6. продлевать	f) e _ _ _ _ _
7. специализация	g) s _ _ _ _ _ _ _ _ _ _ _ _ _
8. специалист; эксперт	h) e _ _ _ _ _
9. предлагать	i) o _ _ _ _
10. владелец; обладатель	j) h _ _ _ _ _

1.9. Choose the correct word to complete the sentences according to the information in the text.

1. A Master of Science degree in engineering is an … to be differentiated from a Master of Engineering degree.
   a) academic degree b) artistic degree c) anthropological degree
2. The types of engineering degree available to you will partly be determined by … and the institution in which you have chosen to study.
   a) the department b) the country c) the organization
3. You may need to provide Graduate Record Examinations results to prove you are ready for … study.
   a) extramural b) additional c) postgraduate level

4. The Master of Engineering degree in Australia is a … research degree with an end-of-year thesis.
   a) prolonged period b) two-to three-year c) five-to seven- year
5. Some universities in the UK now also offer … programs.
   a) Doctor of Engineering b) senior course c) junior course
6. Of course, if you're studying abroad, you'll need to prove your … in the language of study.
   a) capability b) ability c) competency
7. The UK's Imperial College London offers an MSc in Biological Engineering with four separate …: biomechanics, biomaterials, medical physics and neurotechnology.
   a) divisions b) streams c) subdivisions
8. A Master of Engineering degree requires completion of a project and does not qualify its … to apply for a Ph.D. in engineering.
   a) holder b) master c) owner

1.10. Read the text again and answer the questions.

1. What are specialized courses of engineering institutions designed to?
2. What can a Master of Science degree in engineering require?
3. What is necessary to provide to prove you are ready for postgraduate-level study?
4. On what do entry requirements depend?
5. To how many years may the four-year postgraduate Masters in Engineering extend for students to spend a year in industry?
6. What does the US's University of Texas at Austin provide for the students in the engineering field?
7. What perspectives are offered in engineering degrees to the students at the Netherlands' Eindhoven University of Technology?
8. What will you need to prove if you are studying abroad?

1.11. Read the following sentences and say whether they are true (T) or false (F).

1. Entry requirements will vary depending on the institution and the type of engineering degree and specialization you choose.
2. A Master of Science degree and a Master of Engineering degree are identical.
3. Some universities in the UK now also offer Doctor of Engineering programs.
4. The Master of Engineering degree in Australia is a four-to five-year research degree with an end-of-year thesis.
5. You may be accepted to the engineering institutions on the basis of high value placed on literature, history and language modules.
6. Some master's degrees with a more professional focus may require candidates to have been employed in the relevant engineering field.
7. The study of the foreign language is not a problem when you want to study abroad.

1.12. Speak with your partner on the choice of Master program in your university, its perspectives and entry requirements.

Text B

MASTER OF INTERNET ENGINEERING

1.13. Read the following words and expressions and try to guess their meaning.

Internet, social, fundamental, lectures, laboratory, project, component, basic course, module, student, communication technologies, option, mobile, systems, principles, block, examination, dissertation, group.

1.14. Read the following words and mind their pronunciation.

environment	[ɪn'vaɪər(ə)nmənt]	service	['sɜːvɪs]
require	[rɪ'kwaɪə]	tutorial	[tjuː'tɔːrɪəl]
module	['mɔdjuːl]	dissertation	[ˌdɪsə'teɪʃ(ə)n]
advanced	[əd'vɑːn(t)st]	assignment	[ə'saɪnmənt]

Memorize the following words and expressions

facet	*аспект, сторона*	**tutorial**	*консультация*
background	*основа*	**department**	*факультет*
advanced options	*дополнительные опции*	**research output**	*результат научной работы*
network design	*проектирование сетей*	**to carry out**	*выполнять*
term	*семестр*		

1.15. Read the text.

MASTER OF INTERNET ENGINEERING

The Internet has significantly changed our lives. In the near future, most of the facets of our life will be “online”. Our health, entertainment, security and social interactions will be done using Internet applications that only now are being envisioned. This new environment will require people to design, manage and maintain the networks that will build the future Internet.

MSc Internet Engineering offers a course that explains all the fundamental parts of the Internet. The course is delivered by means of formal lectures, laboratory and project work. The lecture component is divided into core modules taking place in term one, to provide the students with the required background in communication

technologies, and optional modules taking place in term two, in which the students are taught more specialized subjects.

Core modules:

- Introduction to IP Networks (IPN)
- Introduction to Telecommunications Networks (ITN)
- Mobile Communications Systems (MCS)
- Internet of Things (IOT)
- Software for Services and Network Design (SNS)

Optional modules:

- Wireless Communications Principles (WCP)
- Communication Systems Modeling (CSM)
- Network Planning and Operations (NPO)
- Network and Services Management (NSM)
- Optical Transmission and Networks (OTN)
- Telecommunications Business Environment (TBE)

All of the course lecturers carry out leading research in the subjects they are teaching. Modules are taught in 4 day blocks from Monday to Thursday a week (10am to 5pm). The examination and a tutorial are held a few weeks before.

The research project begins in term two and the completed results are reported in the students' dissertations, which must be submitted in September. The research work carried out by the students generally takes place within one of the research groups in the department and in many cases the work carried out by the student leads to advances in the department's research output in addition to giving the student good experience of research work.

Source: http://www.ee.ucl.ac.uk/masters/msc-internet-engineering

Notes to the text

Msc Internet Engineering	*магистр интернет-разработок*
to deliver	*зд. осуществлять*
IP network	*IP сеть, компьютерная сеть, работающая с протоколом IP*
Internet of Things	***Интернет вещей*** *(концепция вычислительной сети физических объектов («вещей»), оснащённых встроенными технологиями для взаимодействия друг с другом или с внешней средой, рассматривающая организацию таких сетей как явление, способное перестроить экономические и общественные процессы, а также исключающее из определенных действий и операций необходимость участия человека.)*

1.16. Match the Russian words with their English definitions.

1. диссертация	a) left to one's choice; not required
2. модуль	b) one part or particular aspect of something
3. необязательный; факультативный	c) one of the three periods in the year (especially in Britain) during which classes are held in schools, universities, etc.
4. требовать	d) to put into operation; execute
5. аспект	e) a long piece of writing on something that you have studied, especially as part of a university degree
6. выполнять	f) to give somebody lessons or instructions so that they know how to do something
7. консультация	g) to officially demand or order something
8. семестр	h) a unit that can form part of a course of study, especially at a college or university
9. утверждать; представлять	i) a lesson at a college or university for an individual student or a small group of students
10. обучать	j) to present for consideration

1.17. Find the words in the text with a similar meaning.

1. aspect
2. progressive
3. transference
4. facultative
5. web
6. perform
7. lesson
8. considerably
9. surroundings
10. semester

1.18. Complete the following sentences with the words and expressions from the box (use the correct forms).

research	**take place**	**facet**	**dissertation**	**modules**
teach	**carry out**	**tutorials**	**submit**	**optional**

1. She … English to foreign students.
2. He doesn't have the funds to … his design.
3. Requests must … in writing.
4. He directed all his energies into his … .
5. You must complete three … in your first year.
6. The formal signing will … on the 9th of April.
7. He did some … via the computer.

8. Some lectures and … at Auckland University have been cancelled this week because of the strike of the academic staff.
9. Each … of the problem requires careful attention.
10. Some courses are compulsory, others are … .

1.19. Arrange the sentences in their logical order.

1. carry out / the course / research in / are / all of / the subjects / they / teaching / leading / lecturers
2. begins / two / the research / term / project / in
3. changed / has / lives / the Internet / our / significantly
4. from Monday / in 4 day blocks / a week / taught / are / modules / to Thursday
5. by means of / lectures, / is / the course / work / delivered / formal / and project / laboratory
6. facets of / will / future, / most of / life / in / be / the near / "online" / the / our

1.20. Read the following sentences and say whether they are true (T) or false (F).

1. MSc Internet Engineering offers a course that explains all the fundamental parts of the Internet.
2. In the near future our health, entertainment, security and social interaction will be in no possible way influenced by the Internet.
3. Project work and laboratories are excluded from the curricular.
4. The course lecturers are delivering only the lectures.
5. The students at the college study two terms.
6. The results of the completed research project are reported in the students' dissertations.
7. Modules are taught in two day blocks, on Monday and on Tuesday.
8. The project work of the student is not essential, it does not give the student any research experience.

1.21. Make up questions to which the following statements will be the answers.

1. In term two.
2. More specialized subjects.
3. All of the course lecturers.
4. In the near future.
5. Two terms.
6. Network Planning and Operations.
7. Optional modules.
8. A tutorial.
9. In September.
10. To advances in the department's research output.

1.22. Choose the correct word or expressions to complete the sentences according to the information in the text.

1. The research work carried out by the students generally takes place within one of the research groups in the … .
   a) scientific club
   b) department
   c) scientific society
2. Modules are taught in 4 day blocks … a week.
   a) from Monday to Thursday
   b) twice
   c) from Wednesday to Saturday
3. Our health, entertainment, security and social interactions will be done using … that only now are being envisioned.
   a) Internet programs
   b) Internet characteristics
   c) Internet applications
4. The course is delivered by means of formal lectures, laboratory and … .
   a) project work
   b) seminars
   c) brain rings
5. The lecture component is divided into core modules taking place in term one, and … taking place in term two.
   a) postgraduate courses
   b) optional modules
   c) extramural assignments
6. All of the course lecturers carry out leading research … they are teaching.
   a) new technologies
   b) in the field of science
   c) in the subjects
7. MSc Internet Engineering offers a … that explains all the fundamental parts of the Internet.
   a) course
   b) curricular
   c) corporation

1.23. Imagine you are going to enter University College London and you are making inquiries about the facilities and programs offered by the department. One of your friends has already graduated from this University College. Shower him / her with as many questions as possible.

University College London http://www.youtube.com/watch?v=RppUQyWz7-U

1.24. You are going to watch a video about "University College London". Before watching it give definitions to the following terms.

1. pioneer
2. to be established
3. forefront
4. facility
5. wealthy
6. to encourage
7. diversity
8. department

1.25. Match the parts of phrases from the video and translate them.

1. Nobel Prize	a) the world
2. women's rights	b) groups
3. to open up	c) centre
4. wide range of	d) campaigner
5. community	e) winner
6. innovative	f) disciplines
7. to shape	g) teaching approach
8. research	h) education

1.26. Watch the video again and make the sentences complete.

1. UCL is in the heart of London, one of the most … .
2. … , UCL was established in 1826 to open up education for the first time to students of any … .
3. UCL ideas are … .
4. … encourages UCL people to work together and transform the society with … .
5. The university remains the forefront of innovations … .

1.27. Match the answers to the questions.

1. How many Nobel Prize winners are there at the University College London?	a) It was established for the students of any race, class or religion.
2. What famous people are graduates from UCL?	b) In the heart of London.
3. In what does the university remain the forefront?	c) Twenty-one.
4. Where is UCL located?	d) Alexander Bell, Marie Stopes, Mohandas Gandi.
5. Whom was the foundation of London's Global university meant for?	e) In a wide range of disciplines and innovations.

1.28. Questions for the most observant viewer.

1. What kind of job were the students engaged in on the bank of the river?
2. What was printed on the slogan?
3. What does the UCL flag look like?
4. Whose statue could we see in one of the stills?
5. What sport game were students playing?
6. What was the concluding statement concerning the professors in the last still?

GRAMMAR

Table 1.1

Present Simple and Present Progressive Tenses

Present Simple Tense	Present Progressive Tense
1. Permanent action (state)	**1. Temporary action (state)**
time expressions: always, never, usually, sometimes, often every day, *once / twice / three times* a week	**time expressions:** now, right now, at the moment, at present
I *always* **have lunch** with my class-mates at 12.30 in the afternoon. We **do not (don't)** *usually* **do** our homework *at weekends*. **Do** they **go** to the gym *every day*? – **Yes**, they **do**. / – **No**, they **don't**. Where **do** you *usually* **go** after lessons? – I *usually* **go** to the library.	I **am having lunch** with my group-mates *right now*. We **are not (aren't) doing** our homework *now* because it is Saturday. **Are** they **going** to the gym *at the moment*? – **Yes**, they **are**. / – **No**, they **aren't**. Where **are** you **going**? – To the library.
2. Future actions according to the time-table	**2. Plans for the nearest future**
verbs: **leave**, **arrive**, **begin**, **start**, **end, finish**	**time expressions:** **this Saturday, next week, *etc.***
The show **starts** at 7 p.m. When **does** you plane **leave**?	I usually don't work on Saturdays, but **this** Saturday **I am working**.

1.29. Choose the correct variant.

1. Peter is an engineer. He *works / is working* for Sony Company.
2. Why *do you go / are you going* to the library on Fridays, but not on Saturdays?
3. Ann *has / is having* session exams next week.
4. Mary *isn't doing / doesn't do* her homework. She is in the bar.
5. Where is Kate? I *look for / am looking* for her.
6. Tom is a photographer. He *is taking / takes* beautiful photographs.
7. I don't know Spanish, but I *am learning / learn* it now.
8. The train *arrives / is arriving* at 7 a.m.
9. I can't come right now because I *am having / have* breakfast.
10. I *don't go / 'm not going* to the theatre on week days.

1.30. Complete the following sentences with the correct form of the verb.

1. Excuse me. ... you ... English? (*speak*)
2. Why ... you ... at me? (*look*)
3. Where ... you ... from? - From Canada. (*come*)
4. I can't talk to you at the moment. I ... . (*work*)
5. What ... he ... ? – She is a programmer. (*do*)
6. I ... an important meeting next Tuesday. (*have*)
7. Look! Joe ... to the dean of our faculty. (*talk*)
8. What book ... you ... now? (*read*)
9. Where ... you usually ... on holidays? (*go*)
10. What ... this word ... (*mean*)?
11. When ... your train ... at London? (*arrive*)
12. ... you ... to me? (*listen*)
13. I am sorry; I can't talk to you, I ... for tomorrow meeting. (*prepare*)
14. Don't waste time. We ... for you. (*wait*)
15. Who ... you ... about? (*think*)

Table 1.2

Conditionals I

If you **study** hard, you **will pass** your exams. **If** he **studies** hard, he **will not (won't) fail** his exams.
If you **don't study** hard, you **will not** (**won't) pass** your exams. **If** he **doesn't study** hard, he **will fail** his exams.

1.31. Choose the correct variant.

1. When I *will know / know* the exam results, I will phone you.
2. If you *miss / will miss* the lecture, you will have problems with the exams.
3. When I *come / will come* back, I *will ask / ask* you some important questions.

4. Your parents will worry, if you *don't pass / won't pass* session exams.
5. If you *come / will come* in time, we *won't be / aren't be* late for the concert.
6. I *will help / help* you if you *ask / will ask* me.
7. You *get / will get* / *gets* a lot of knowledge if you *attends / attend / will attend* all the lectures.
8. If you *tell / tells / will tell* me about your problems, I *help / will help* you to solve some of them.
9. What *will happen* / *happens* if he *miss* / *misses / will miss* this lecture?
10. If Dennis *don't write / doesn't write / won't write* soon, I *phone / will phone* him.

Table 1.3

Present Perfect and Past Simple Tenses

He **has** *just* **passed** his Maths exam.
He **passed** his Maths exam *a week ago*.

I **have not (haven't) read** the fashion magazine *yet*.
I **did not (didn't) read** the fashion magazine *yesterday*.

Have you *ever* **been** to Italy?
– Yes, I **have**.
– No, I **haven't**.
or: I **have** *never* **been** to Italy.

When **did** you **go** to Italy? – I **went** there *three years ago*.
Did you **like** living there?
– Yes, I **did**.
– No, I **didn't**.

1.32. Choose the correct variant and complete the following sentences.

1. Two weeks ago I *have taken / took* part in the international conference.
2. My parents *just moved / have just moved* to London.
3. Who *has asked / asked* you many questions after the seminar yesterday? – Mr. Black.
4. My sister Helen *graduated / has graduated* from the university in 2012.
5. Lucy *hasn't solved / didn't solve* her problems yet.
6. The computer which I *have bought / bought* yesterday is very expensive.
7. Look! Somebody *has left / left* the telephone.
8. When did you last phone your parents? – Yesterday my mother *has phoned / phoned* me and *told / has told* me about her new job.
9. When he was younger, he *did not like / haven't liked* sport.
10. Does anybody know the results of the test? I am sure I *have done / did* it without any mistakes.

1.33. Read the Dan's letter. Pay attention to the using of present simple, present progressive, future simple, past simple and present perfect forms.

Hello, Nick!

I am writing to you to share my success. I have just passed my last exam with an excellent mark and now I am free till the first of September. As I told you last time, I was always good at Mathematics and Physics at school. My parents bought me a computer when I was 10. Since then I have always known that I will become a specialist in the sphere of computer design and technology. I have never failed the exams. I haven't had any satisfactory marks yet.

A week ago I had an interview with the head of the computer firm, Mr. White. He asked me a lot of questions about my exam results, my plans and wishes. Mr. White has his own computer business and now his firm is well-known all over the town where I live.

Yesterday I read several advertisements in the newspaper. They offer a lot of vacancies in the sphere of computer design and engineering. So, there are a lot of employment opportunities in my specialty. I hope if I work hard, I'll graduate from the university with excellent marks and get the Bachelor's degree in Computer Science.

Give my regards to Kate and wish me luck.

Sincerely yours, Dan.

1.34. Answer the questions according to the letter.

1. Who is Dan writing to?
2. Has Dan passed his last exam?
3. Was he good at Physics at school?
4. When did Dan's parents buy him a computer?
5. Was Dan good at Mathematics and Physics at school?
6. Has he ever failed the exams?
7. When did Dan have an interview?
8. What did Mr. White ask him about?
9. Is Mr. White's firm well-known?
10. What do the ads offer?
11. How many employment opportunities are there in Dan's specialty?
12. Will he get the Bachelor's degree if he works hard?

1.35. Write down the letter to a penfriend.

1.36. Choose the correct variant.

Test yourself

1. He *usually* … his office at 6.00 p.m.
   a) leave b) is leaving c) leaves
2. We … all the necessary books from the library *yesterday*.
   a) take b) took c) have taken
3. I … *just* …the report.
   a) have written b) has written c) am writing
4. She … the contract *now*.
   a) types b) is typing c) typing
5. Bill … *already* … your report. He thinks your ideas are good.
   a) have read b) is reading c) has read
6. My sister … the university *next year*.
   a) enter b) will enter c) entered
7. *If* I … a decision, I … you.
   a) will make, will tell b) makes, will tell c) make, will tell
8. The train … *at 5* according to the time-table.
   a) will arrive b) is arriving c) arrives
9. Have you read my article *yet*? – No, I haven't. I … to read it tonight. I am writing an important report now.
   a) will plan b) am planning c) plan
10. What will you do *if* you … Physics exam? – I don't know. I will probably attend additional lessons.
    a) don't pass b) won't pass c) not pass

1.37. Complete the following sentences on your own.

1. I have never ... .
2. I am studying English because ... .
3. My group-mates usually ... .
4. My parents ... at the moment.
5. When I was younger, I didn't ... .
6. If I have more free time, I ... .
7. My friends always ... at the weekend.
8. In summer I ... .
9. Last term we ... .
10. Every day ... .
11. Next week ... .
12. When I graduate from TUSUR, ...

Unit 2. MOST FAMOUS

Text A Steve Jobs
Text B The Five "Inventions" of Steve Jobs
Listening: Golden Rules by Steve Jobs
Grammar: Tenses of the Active Voice, Passive Voice

Text A

STEVE JOBS

2.1. Read the following words and expressions and try to guess their meaning.

Electronic devices, iPod, iPhone, music, region, college, association, lecture, popular, business, India, project, personal computer, graphical user interface, company, role, email.

2.2. Read the following words and mind their pronunciation.

acquire	[ə'kwaɪə]	valley	['vælɪ]
wizard	['wɪzəd]	aesthetic	[iːs'θetɪk]
San Francisco	[ˌsænfræn'sɪskəu]	bankruptcy	['bæŋkrʌptsɪ]

Memorize the following words and expressions

to credit (smb) with	*приписывать (кому-л. совершение какого-л. действия)*	**interact**	*взаимодействовать*
printed circuit board	*печатная плата*	**item**	*элемент*
share	*акция*	**board**	*правление, руководство, совет, коллегия*
merchandise	*товары*	**reinstate**	*восстанавливать (в прежнем положении, в правах)*
go into business	*заниматься торговлей*	**focus on**	*фокусироваться на*
establish	*устанавливать; создавать*	**bankruptcy**	*банкротство*

2.3. Read the text.

STEVE JOBS

Steve Jobs was the Chairman, CEO and co-founder of Apple Inc., a leading manufacturer of electronic devices including the Macintosh Computer (MAC), iPod, iPhone, and the music and video software itunes. He was CEO of Pixar Animation Studios until it was acquired by Disney in 2006. Although he is known as a business and sales wizard, Steve Jobs is credited with many of the electronic inventions now patented by Apple.

Steven Paul Jobs was born in San Francisco to Joanne Carole Schieble and Syrian Abdulfattah John Jandali and adopted by Paul and Clara Jobs. He spent his childhood in the South Bay area, a region that would later become known as Silicon Valley. During high school Jobs held a summer job at the Hewlett-Packard Company in Palo Alto prior to attending college. His original association with Steven Wozniak began as a result of attending lectures and working at HP.

Although he attended Reed College in Portland, Oregon, Steve Jobs never graduated, having only spent about six months at college. He returned to California in 1974 and began attending meetings of the Homebrew Computer Club with his friend Wozniak. At the same time he took a job at Atari to save money for a spiritual retreat to India. While working there he discovered that a popular whistle recreated the tones needed to make long distance phone calls with AT&T. Jobs convinced Wozniak to go into business with him to create "blue boxes" and sell them to people wishing to make free long distance phone calls.

Jobs ended up backpacking through India but returned to work with Atari. He continued to work with Wozniak on other projects and finally convinced him to market a computer Wozniak had built for himself. On April 1, 1976, Apple Inc. was born. Although the business started with printed circuit boards, Steve Wozniak and Steve Jobs eventually created their first personal computer, the Apple I, and sold it for $666.66. They later followed it with the Apple II, a large success for their business. Apple Inc. began selling shares in December of 1980.

As the company grew, so did its merchandise and the hugely successful Macintosh was introduced to the public in 1984 and became the first personal computer with a graphical user interface (GUI) through which individuals could interact with the items on the screen. As Apple grew even more, Jobs experienced tension with the board and the struggles led to Jobs leaving Apple in May of 1985.

Steve Jobs went on to create the company called NeXT in 1986. Although it began as a company designed around aesthetic interpersonal computing, it later focused more on software development. NeXT ended up playing a major role in the development of email and the world wide web.

Apple bought NeXT in 1996 and reinstated Jobs as the Chief Executive Officer. He consistently helped to grow Apple from a company bordering on bankruptcy in the 1990s to a very successful company today. Steve Jobs helped to establish the new electronic divisions and personally helped to create the ipod, iphone, and other personal devices.

Steve Jobs died on the 5th of October in 2011 after complications with pancreatic cancer.

Source: http://www.woopidoo.com/biography/steve-jobs/

Notes to the text

CEO (Chief Executive Officer)	*генеральный директор; президент; председатель правления*
iTunes	*программа, которая служит для формирования файлов, плей-листов (playlist), подкастов (podcast) и каталогов музыкальных и др. записей, которые затем заносятся (вводятся) в цифровой плеер iPod*
Pixar Animation Studios	*Анимационная студия Пиксар (американская киностудия, работающая в жанре компьютерной анимации)*
Atari Inc. (1972–1984)	*американская компания по производству и изданию компьютерных игр. До 1984 года занимала лидирующее положение на рынке видеоигр.*

2.4. Guess what words from the text "The Most Famous" are defined below.

1. leading	a) goods that are for sale
2. to reinstate	b) a person or company that makes something
3. share	c) to persuade somebody to do something
4. to convince	d) a fight in which somebody tries to do or get something when this is difficult
5. bankruptcy	e) best or most important
6. success	f) to communicate or mix with somebody, especially while you work, play or spend time together
7. to interact	g) to return something to its former position or role
8. merchandise	h) the state of being bankrupt
9. struggle	i) one of many equal parts into which the value of a company is divided, that can be sold to people who want to own part of the company
10. manufacturer	j) the fact that you have achieved what you want; doing well and becoming famous

2.5. What word is extra in each line?

1. chairman	director	traitor	administrator
2. persuade	convince	prove	disapprove
3. breakdown	advance	success	triumph
4. merchandise	default	stuff	product
5. interact	cooperate	collaborate	conjugate
6. item	element	composition	component
7. block	loss	default	bankruptcy
8. focus on	corporate	concentrate on	undertake

2.6. Complete the following sentences with the words and expressions from the box (use the correct forms).

success	**go into business**	**convince**	**board**	**leading**	**share**
bankruptcy	**struggle**	**circuit boards**	**Chief Executive Officer**		

1. She played a … role in getting the business started.
2. The salesman … them to buy a new cooker.
3. The company filed for … in 2005.
4. Hard work is the key to … .
5. Printed electronic …. … have replaced the spiderweb of wires.
6. He will not give up the presidency without a … .
7. The … of directors is meeting to discuss the firm's future.
8. After 10 years, I at last decided to sign off and … by myself.
9. … prices are down in London.
10. With the new … arrived, the company was in trouble.

2.7. Complete the sentences about "Steve Jobs". Use English equivalents instead of the Russian words and phrases in brackets.

1. Although he is known as a business and sales *(«маг»),* Steve Jobs is credited with many of the electronic *(изобретений)* now patented by Apple.
2. He spent his *(детство)* in the South Bay area, a region that would later become known as Silicon Valley.
3. He *(возвратился)* to California in 1974 and began *(посещать)* meetings of the Homebrew Computer Club with his friend Wozniak.
4. Jobs ended up *(путешествовать пешком)* through India but returned to work with Atari.
5. Although the business started with *(печатными платами)* , Steve Wozniak and Steve Jobs eventually created their first personal computer, the Apple I, and *(продал)* it for $666.66.
6. As Apple grew even more, Jobs *(испытывал)* tension with the board and *(проблемы)* led to Jobs leaving Apple in May of 1985.
7. Apple bought NeXT in 1996 and reinstated Jobs as *(генерального директора)*.
8. Steve Jobs died on the 5th of October after *(осложнений)* with pancreatic cancer.

2.8. Match the beginnings of the sentences with the endings.

1. On April 1, 1976, …	a) in the development of email and the world wide web.
2. Steve Jobs went on to create the company …	b) but returned to work with Atari.

3. During high school Jobs held a summer job …	c) Apple Inc. was born.
4. His original association with Steven Wozniak began …	d) called NeXT in 1986.
5. Apple Inc. began selling shares …	e) at the Hewlett-Packard Company in Palo Alto prior to attending college.
6. Steve Jobs helped to establish the new electronic divisions and …	f) as a result of attending lectures and working at HP.
7. Jobs ended up backpacking through India …	g) in December of 1980.
8. NeXT ended up playing a major role …	h) personally helped to create the ipod, iphone, and other personal devices.

2.9. Choose the best answer (a, b, c) to the following questions.

1. Which was one more leading activity of Steve Jobs besides being a founder of Apple Inc.?
   a) designer b) manufacturer c) initiator
2. What was Jobs' way of traveling through India?
   a) camping b) tripping c) backpacking
3. What did Jobs convince Wozniak to create?
   a) "blue boxes" b) "blue whales" c) "blue lamps"
4. What company did Steve Jobs create in 1986?
   a) Mackintosh b) NeXT c) Hewlett-Packard
5. What according to Steve's discovery recreated the tones needed to make long distance phone calls?
   a) popular whistle b) popular radio c) popular signal
6. What did Jobs experience with the board as Apple grew more and more?
   a) disillusion b) dissatisfaction c) tension
7. What is the name of the region in which Steve Jobs spend his childhood?
   a) Salvador b) Silicon Valley c) Saint Helena
8. What did Steve Jobs personally help to create?
   a) ipod b) input c) installation

2.10. Read the following sentences and say whether they are true (T) or false (F).

1. On April 1, 1976, Apple Inc. was born.
2. Apple Inc. began selling shares in January of 1980.
3. Jobs took a job at Atari to save money for a spiritual retreat to India.

4. Jobs returned to California in 1974 and began attending meetings of the Wozniak Computer Club.
5. During high school Jobs held a winter job at the Hewlett-Packard Company.
6. Jobs consistently helped to grow Apple from a company bordering on bankruptcy in the 1990s to a very successful company today.
7. Macintosh became the first personal computer with a popular user interface.
8. Steve Jobs died on the 5th of October in 2011 after complications with lung disease.

2.11. Discuss with your partner the statement: "Why is Steve Jobs known as a business and sales wizard?"

Text B

THE FIVE "INVENTIONS" OF STEVE JOBS

2.12. Read the following words and expressions and try to guess their meaning.

Patent, role, innovations, engineer, official biographer, technology, operating system, idea, text, computer screen, period, course in calligraphy, device, user, category, MP3 player, strategy, iPhone, technological, the president, smartphone, function, mobile device, GPS navigator, icons, product, Google, Samsung.

2.13. Read the following words and mind their pronunciation.

actual	['æktʧuəl]	circular	['sɜːkjələ]
Xerox	['zɪərɔks]	exalt	[ɪg'zɔːlt]
calligraphy	[kə'lɪgrəfɪ]	executive	[ɪg'zekjutɪv]
career	[kə'rɪə]	posthumously	['pɔstjəməslɪ]

Memorize the following words and expressions

to challenge	*ставить под сомнение, оспаривать*	**rather than**	вместо того, чтобы
to originate	*создавать; возникать*	**to reinvent**	заново изобретать; обновлять
to inspire	*вдохновлять*	**swiping the screen**	движение пальцем по экрану
launch	*выпуск новых товаров на рынок*	**announcement**	объявление
to refine	*усовершенствовать, повышать качество*	**competitor**	конкурент

to exalt	*стимулировать*	**executive**	должностное лицо
leap	*скачок*	**font**	*шрифт*
to eliminate	*ликвидировать; исключать*	**to integrate**	*объединять*

2.14. Read the text.

THE FIVE "INVENTIONS" OF STEVE JOBS

Steve Jobs appears as the author of 346 patents in the US registry, but his actual role in all these innovations has been challenged, as he really had no skills as a designer or engineer. In fact, his official biographer, Walter Isaacson, describes him as a tweaker: someone who, rather than invent, was devoted to tweaking and refining already-invented devices and technologies in order to simplify their use.

Macintosh: A great leap in the career of Steve Jobs was the introduction of the original Macintosh (1984), the first consumer computer with a graphical user interface. In other words, it had an operating system with windows and icons, and a mouse to move between them. This idea did not originate with Steve Jobs. It's well known how he was inspired during a visit to the Xerox research centre, where all these ideas had already been developed. But Jobs managed to pack them all into a revolutionary computer, adding a few touches of his own.

Typography on screen: One of the major innovations of the original Macintosh was that it showed on the screen the font chosen for the text. Until then, what was drawn on computer screens was just like on a typewriter. It was on the insistence of Steve Jobs that the first Mac had the ability to display different fonts. As he explained in his famous speech at Stanford University, this effort was due to a fleeting period in college when he was bored and decided to take a course in calligraphy.

Mouse: Steve Jobs was not the inventor of the mouse, but during his career at the head of Apple, one of his obsessions was to perfect this device for communicating with computers. He first got it right with the simple one-button mouse for the original Macintosh, much simpler than the mice that he had discovered on his visit to Xerox PARC. Next, on the launch of the iMac, he insisted on the idea of a single-button mouse, but with a circular design that made it much more uncomfortable and confusing to users. Finally, with his "Mighty Mouse" and "Magic Mouse," he corrected the mistake and took his idea even further: Apple mice no longer have any buttons.

Mac (1998) + iPod (2001) + iPad (2010): These three devices fall into the same category. With them, the Californian "tweaker" proposed reinventing three devices that seemed to him to be stagnant and/or useless: the personal computer, the MP3 player and the tablet PC. In all three cases his strategy was the same. He led teams of talented designers and software engineers and had them invent more and more

prototypes. Then he eliminated the vast majority until he was left with one that did not upset him and, from that prototype, he had them start over, once again refining, looking for simplicity and beauty.

iPhone: This same "Jobs method" was the key to developing the iPhone, perhaps the technological work that definitively exalted the president of Apple in 2007. Rather than reinventing the smartphone, the iPhone integrated functions of other mobile devices such as MP3 players, GPS navigators or even cameras. The key to integrating all these capabilities into a single terminal was reinventing the operating system, again putting together pieces that already existed: icons, touchscreens and gesture control (like using two fingers to enlarge or reduce a picture on the iPhone, or swiping the screen to unlock the phone).

After the announcement of the iPhone in January 2007, the competitors of Apple began working on this same product line, and from there arose the disagreements of Jobs with executives from Google and Samsung. The great "tweaker" disliked that others were inspired by his creations. Thus he started a patent war in which he won a great battle posthumously: in October 2013, Apple won a patent that gathers together, in 364 pages, many details of the original iPhone. Apple had just passed two years from the death of its technological father, and that macro-patent became known as the "Steve Jobs Patent".

Source: https://www.bbvaopenmind.com/en/5-inventions-steve-jobs/

Notes to the text

US registry	*канцелярия США*
tweaking	*доработка, корректировка*
"Mighty Mouse"	*многофункциональная мышь (по аналогии с диснеевским могучим мышонком Mighty Mouse)*
"Magic Mouse"	*«волшебная мышь» - компьютерная мышь с поддержкой технологии мультитач, выпускаемая и продаваемая компанией Apple Inc.*

2.15. Match the Russian words with their English definitions.

1. повышать качество	a) to happen or appear for the first time in a particular place or situation
2. конкурент	b) a sudden large change or increase in something
3. ликвидировать; исключать	c) a person who has an important position as a manager of a business or organization
4. должностное лицо	d) the particular size and style of a set of letters that are used in printing, on a computer screen, *etc*.
5. возникать; создавать	e) to make somebody want to do or create something

6. патент	f) to improve something by changing little details
7. вдохновлять	g) a person or organization that is competing against others
8. скачок	h) the official right to be the only person to make, use or sell a product or an invention
9. устройство	i) to remove somebody / something that is not wanted or needed
10. шрифт	j) a tool or piece of equipment made for a particular purpose

2.16. Give definitions to the following items.

1. tweaker
2. graphical user interface
3. typewriter
4. fleeting period
5. useless
6. terminal
7. gesture control
8. software engineer

2.17. Find the words in the text with a similar meaning.

1. main
2. modernization
3. original
4. to dispute
5. symbol
6. handwriting
7. notebook
8. ineffective
9. director
10. to combine

2.18. Rewrite the underlined words and expressions in the sentences using the words given in the box in the correct form.

eliminate	**capability**	**patent**	**launch**	**executive**
competitor	**an announcement**	**originate**		

1. Two local companies are our main <u>rivals</u>.
2. We must try and <u>get rid of</u> the problem.
3. It is anticipated that he will make <u>a statement</u> on his inventions later this week.
4. She is a senior <u>chief</u> in a computer company.
5. Last year the country was granted 146 U.S. <u>licences</u> for various technologies and products.
6. He <u>invented</u> the idea of a negawatt, a unit electricity which is simply not used.
7. The official <u>starting</u> date is in May.
8. The device has the <u>capacity</u> of recording two television channels at once.

2.19. Choose the best word or phrase to complete the sentences.

1. A great *leap / breakdown* in the career of Steve Jobs was the introduction of the original Macintosh (1984), the first *officer/ consumer* computer with a graphical user interface.
2. One of the major *disadvantages / innovations* of the original Macintosh was that it showed on the screen *the font / the spelling* chosen for the text.
3. Steve Jobs was not the inventor of the mouse, but during his *performance / career* at the head of Apple, one of his obsessions was to perfect this device for communicating with computers.
4. This same "Jobs method" was the *key / the promotion* to developing the iPhone, perhaps the technological work that definitely exalted the president of Apple in 2007.
5. After the *announcement / creation* of the iPhone in January 2007, the competitors of Apple began working on this same product line, and from there arose the *friendly relations / disagreements* of Jobs with executives from Google and Samsung.
6. In October 2013, Apple won a *patent / manuscript* that gathers together, in 364 pages, many *ingredients / details* of the original iPone.

2.20. Read the text again and answer the questions.

1. What was Steve Jobs obsession during his career at the head of Apple?
2. In what way did he perfect it finally?
3. What was a great leap in the career of Steve Jobs?
4. What was one of the major innovations of the original Macintosh?
5. What patent became known as the "Steve Jobs Patent?"
6. Functions of what devices did the iPhone integrate in itself?
7. With what executives did Jobs have disagreements? And why?
8. What was the key to integrating the functions of other mobile devices into a single iPhone operating system?

2.21. Read the following sentences and say whether they are true (T) or false (F).

1. The announcement of the iPhone was held in January, 2013.
2. Steve Jobs was not the inventor of the mouse.
3. Jobs official biographer was Walter Disney.
4. Steve Jobs was known as Californian "tweaker".
5. Until Steve Jobs invented the original Macintosh, what was drawn on computer screens was just like on a telephone disk.
6. Steve Jobs delivered his speech on "typography on screen" subject at Oxford University.

7. A curricular design of a single- button mouse was uncomfortable and confusing to users.
8. During some fleeting period in college when Steve was bored, he decided to take course in horse riding.

2.22. Discuss Steve Jobs contribution to the computer innovations and what was meant by the characteristic Californian "tweaker".

Golden Rules by Steve Jobs

http://mp3opia.ru/download/golden-rules-by-steve-jobs/9jZi2waofq8.html

2.23. Before watching the video, match the words in the left column with their definitions in the right one.

1. collaborative	a) to understand
2. committee	b) to give (support, money, etc.) for a common purpose or fund
3. start-up	c) to employ (a person) for wages
4. tremendous	d) a new business
5. to figure out	e) a group of people chosen or appointed to perform a specified service or function
6. teamwork	f) vast; huge
7. to hire	g) involving, or done by, several people or groups of people working together
8. to contribute	h) the cooperative work done by a team

2.24. Watch the episode about "Golden Rules by Steve Jobs" again and answer the questions based on it.

1. How are the stuff of the company distributed according to their duties?
2. How often do the members of the collaborative Apple company meet?
3. What do the members of the Apple company discuss at their meetings?
4. On what principle is the work of the company based?
5. What are the obligations of Steve Jobs?
6. Besides being a facilitator of the meetings what else is expected to be done by Steve Jobs?
7. What is the top teamwork responsible for?
8. What characteristic does Steve Jobs apply to journalists?

2.25. Choose the correct variant.

1. One of the keys to Apple is … .
   a) incredibly collaborative spirit of the company
   b) incredibly considerate spirit of the company
   c) incredibly cautious spirit of the company

2. We are organized like … .
   a) headmasters
   b) a start-up
   c) facilitators

3. We work much at … how to divide things up in these great teams.
   a) mixing up
   b) balancing up
   c) figuring out

4. You have to be run by ideas, not … .
   a) a bribe
   b) hierarchy
   c) monarchy

5. Steve Jobs disapproves of the work of … journalists.
   a) snooky
   b) spooky
   c) spoony

6. The team work is dependent on trusting the other folks to come through with their part without … them all the time.
   a) pleasing
   b) cheating
   c) watching

7. There are … committees at Apple.
   a) 8
   b) 2
   c) 0

8. If you want to … great people and have them stay working for you, you have to let them … a lot of decisions for themselves.
   a) expel; do
   b) hire; make
   c) evade; start

GRAMMAR

Tenses of the Active Voice

Table 2.1

Simple Tenses

Past	Present	Future
S + $V_{ed/2}$	**S + $V_{(s)}$**	**S + will V**
I **went** to the cinema *yesterday.*	I **go** to the cinema *every week.* (He **go*es***…)	I **will go** to the cinema *tomorrow*.
Did + S + V?	**Do/Does + S + V?**	**Will + S + V?**
Did you **go** to the cinema *yesterday?* – **Yes**, I **did**. / – **No**, I **didn't.**	**Do** you **go** to the cinema *every week?* – **Yes**, I **do**. / **No**, I **don't**. (**Does** he **go**…?) – **Yes**, he **does**. / **No**, he **doesn't.**	**Will** you **go** to the cinema *tomorrow?* – **Yes**, I **will**. / – **No**, I **won't.**
S + did not + V Short form: **didn't**	**S + do/does not + V** Short forms: **don't, doesn't**	**S + will not + V** Short form: **won't**
I **didn't go** to the cinema *yesterday.*	I **don't go** (He **doesn't go**…) to the cinema *every week.*	I **won't go** to the cinema *tomorrow*.

2.26. Change the following sentences into the past simple or future simple tenses.

1. They do not often discuss their problems with us.
2. Do you often deal with complicated problems?
3. Does he ever take notes of the initial and final results?
4. We sometimes compare the results received with the theory.
5. I do not often get the equipment ready for the measurements.
6. My colleague and I do independent researches every month.
7. You sometimes try new methods.
8. Does she often change the experiment conditions?
9. He works in the team on theoretical research.
10. He does not often use electron microscopy.

2.27. Choose the correct variant.

1. A lab assistant usually … the equipment to the students.
   a) show b) will show c) shows
2. These students … in our group.
   a) study b) studies c) is study
3. The students … get any special knowledge during the first term.
   a) doesn't b) don't c) aren't
4. A magnetic field … influence on the neutron.
   a) don't b) isn't c) doesn't
5. Where … students receive higher education?
   a) do b) does c) are
6. ... he discuss any problems with his colleagues?
   a) Is b) Does c) Do
7. She … to translate the text yesterday.
   a) begins b) will begin c) began
8. … the students ask the lecturer many questions?
   a) Are b) Did c) Does
9. I hope the head of the laboratory … the students in the morning.
   a) will meet b) meet c) meets
10. If you … much, you … good results.
    a) will work; will get b) works; will get c) work; will get

Table 2.2

Progressive Tenses

Past	**Present**	**Future**
S + was/were + V_{ing}	**S + am/is /are + V_{ing}**	**S + will be + V_{ing}**
I **was doing** my homework *at 5 o'clock. / when he came.*	I **am doing** my homework *now.*	I **will be doing** my homework *at 5 o'clock. / when he comes.*
Was/Were + S + V_{ing}?	**Am/Is/Are + S + V_{ing}?**	**Will + S + be + V_{ing}?**
Were you **doing** your homework *at 5 o'clock? / when he came*? – **Yes**, I **was**. / **No**, I **wasn't.**	**Are** you **doing** your homework *now*? – **Yes**, I **am**. / **No**, I**'m not.**	**Will** you **be doing** your homework *at 5 o'clock? / when he comes*? – Yes**,** I **will**. / No**,** I **won't**.
S + was/were not + V_{ing} Short forms: I (he she, it) **wasn't** we (you, they) **weren't**	**S + am/is/are not + V_{ing}** Short forms: I'**m not** he (she, it) **isn't** you (we, they) **aren't**	**S + will not be + V_{ing}** Short form: **won't**
I **wasn't doing** my homework *at 5 o'clock. / when he came.*	I**'m not doing** my homework *now.*	I **won't be doing** my homework at *5 o'clock. / when he comes.*

2.28. Use the following sentences to describe the modern science, as in the model.

Model: Scientific information **did not grow** so rapidly during the last century.
Scientific information **is growing** very rapidly *now*.

1. Not so many people took part in research during the last century.
2. Scientists did not work in big research teams during the last century.
3. Science did not attract so many people during the last century.
4. Scientists did not publish so many papers during the last century.
5. The number of publications did not increase so rapidly during the last century.
6. Not so many new branches of science emerged during the last century.

2.29. Put the verbs in the correct progressive form.

1. We … for the test on Physics. (*to prepare*)
2. He … to the radio when he heard the news. (*to listen*)
3. We … our tests at 10 o'clock tomorrow. (*to write*)
4. I … to the university when I met Ann. (*to go*)
5. Nick made a lot of mistakes when he … his homework. *(to make; to do)*
6. The computer … while I … e-mail. *(to break down; to send)*
7. Sorry, I can't go out. I … my homework. (*to do)*
8. I … on that report when Jane … . *(to work; to come)*
9. At this time tomorrow they … . (*to meet*)
10. I … a book when the telephone … . (*to read; to ring*)

Table 2.3

Perfect Tenses

Past	**Present**	**Future**
S + had + $V_{ed/3}$	**S + has/have + $V_{ed/3}$**	**S + will have + $V_{ed/3}$**
I **had written** the letter *by 5 o'clock. / before he came.*	I **have** *just / already / recently / lately* **written** the letter.	I **will have written** the letter *by 5 o'clock. / before he comes.*
Had + S + $V_{ed/3}$?	**Have/Has + S + $V_{ed/3}$?**	**Will + S + have + $V_{ed/3}$?**
Had you **written** the letter *by 5 o'clock? / before he came?* – **Yes**, I **had**. / **No**, I **hadn't.**	**Have** you *already* **written** the letter? – **Yes,** I **have. / No,** I **haven't.**	**Will** you **have written** the letter *by 5 o'clock?/ before he comes?* – **Yes**, I **will**. / **No**, I **won't.**
S + had not + $V_{ed/3}$ Short form: **hadn't**	**S + *have/has* not + $V_{ed/3}$** Short forms: **haven't, hasn't**	**S + will not have + $V_{ed/3}$** Short form: **won't have**
I **hadn't written** the letter *by 5 o'clock. / before he came.*	I **haven't written** the letter *yet.*	I **won't have written** the letter *by 5 o'clock. / before he comes.*

2.30. Put the verbs in the correct perfect form.

1. Why aren't you writing the test? – But I … it! (*to do)*
2. When I turned on the TV-set, the program … already … . (*to start*)
3. Wow! I … just … the visa! (*to receive*)
4. He … the news until I told him. (*not to hear*)
5. Have you finished the translation yet? – No, I haven't. I … the translation by nine o'clock tomorrow morning. (*to finish*)
6. I … this film twice. (*to see*)
7. Have you already written your diploma work? – No, I … it by Monday. (*to write*)
8. We … this problem with a lot of people by the end of the conference yesterday. (*to discuss*)

2.31. Answer the following questions using the present, past or the future perfect tense, as in the model.

Model: Why don't you send your paper to a journal? (*already*)
I **have** *already* **sent** it to "Nature" journal.

1. Why don't you write to the editor of this journal? (*by the end of this week*)
2. Why don't you read my article? (*by 5 o'clock yesterday*)
3. Why don't you have a talk with your group leader? (*recently*)
4. Why doesn't he answer your letter? (*by the end of the week*)
5. Why don't you show him your results? (*just*)
6. Why doesn't he send you a copy of his paper? (*by next Monday*)
7. Why doesn't your leader give you some advice on the matter? (*already*)
8. Why don't you show Dr. Brown a copy of your recent paper? (*by the beginning of the next term*)

Revising Tenses of the Active Voice

2.32. Make sentences according to the models.

Model A: I **do** my hometask **every day**.

1.	___do____	every day	7.	_____	tomorrow at 3 p.m.
2.	_____	yesterday	8.	_____	tomorrow by 6 p.m.
3.	_____	yesterday by 8 p.m.	9.	_____	before I listened to music
4.	_____	yesterday when my friend came	10.	_____	twice
5.	_____	yesterday at 7 p.m.	11.	_____	already / just
6.	_____	tomorrow	12.	_____	now

Model B: They **read** books **every weekday**.

1. **every weekday**, last week by the weekend, next year, now, when I met James
2. yesterday when I came to him, tomorrow, every evening, just
3. yesterday, tomorrow at 8 a.m., then I went out
4. already, now, when Pete came, before she went out
5. every weekend, at 5 o'clock tomorrow, yesterday, twice
6. last lesson, yesterday by the evening, next lesson, and wrote essays

2.33. Choose the correct variant.

1. *Я только что* **отправил** ему письмо.
   a) had sent c) sent c) have sent
2. *На прошлом уроке* мы **готовились** к тесту.
   a) were preparing b) prepared c) had prepared
3. Что Вы **будете делать** *завтра в 10 утра*?
   a) will do b) will be doing c) will have done
4. *Я еще* **не говорил** с ним об этом.
   a) didn't speak b) don't speak c) haven't spoken
5. *Если они выйдут* в половине пятого, они **приедут** в шесть.
   a) will arrive b) arrive c) are arriving
6. *Я* **сдам** экзамен *к концу июня*.
   a) will pass b) will be passing c) will have passed
7. Не ходите в ту аудиторию. Там студенты **проводят** эксперимент.
   a) making b) are making c) make
8. Наш учитель **говорит** по-английски и по-французски.
   a) spoke b) speaks c) has spoken
9. Он **писал** письмо, *когда я пришел* к нему.
   a) was writing b) wrote c) writing
10. *Я* **сделал** свою работу *до того, как ко мне пришел мой друг*.
    a) did b) have done c) had done

2.34. Complete the following sentences on your own.

1. I … every week.
2. Don't come to my place tomorrow morning. I … .
3. When I was ten, I … .
4. If I have more money, I … .
5. I … now.
6. Yesterday at 5 p.m. I …
7. Wow! I … just … .
8. I … before you came.
9. I … by the end of this month.

Passive Voice

Table 2.4

Simple Passive Tenses

be + $V_{ed/3}$

Tense	Model	Example
Present	am / is / are + $V_{ed/3}$	The work **is done** every *day*.
Past	was / were + $V_{ed/3}$	The work **was done** *yesterday*.
Future	will be + $V_{ed/3}$	The work **will be done** *tomorrow*.

2.35. Rewrite the following sentences in simple passive, as in the model.

Model A: The teacher **explained** the rule to the students.
The rule **was explained** to the students by the teacher.

1. He often asks me to help them.
   I … often … to help them.
2. Steve will make a report at the conference.
   A report … at the conference by Steve.
3. Mendeleyev presented his table in 1869.
   The table … by Mendeleyev in 1869.
4. They speak much about this event.
   This event … much … about.
5. He showed us the articles from the latest magazine.
   The articles … to us from the latest magazine.
6. They usually do exercises in class.
   Exercises … usually … in class by them.

Table 2.5

Progressive Passive Tenses

be + being + $V_{ed/3}$

Tense	Model	Example
Present	am / is / are + being + $V_{ed/3}$	The work **is being done** *now*.
Past	was / were + being + $V_{ed/3}$	The work **was being done** *at 5 o'clock / when he came*.
Future	**Future Simple form** is used	

2.36. Rewrite the following sentences in progressive passive, as in the model.

Model: The teacher **is explaining** the rule to the students now.
The rule **is being explained** to the students by the teacher now.

1. The professor is examining the students at the moment.
   The students … by the professor at the moment.
2. They were waiting for us.
   We … for by them.
3. The interpreter is translating their conversation rather well.
   Their conversation … by the interpreter rather well.
4. The secretary was sending the fax.
   The fax … by the secretary.
5. She is giving a very interesting talk.
   A very interesting talk … by her.
6. I was writing a test.
   A test … by me.
7. He is taking a photo of her.
   A photo of her … by him.
8. Was she reading these lines?
   … these lines … by her?
9. Are you preparing for the test?
   … the test … by you?
10. Are they talking about the meeting?
    … the meeting … by them?

Table 2.6

Perfect Passive Tenses

have + been + $V_{ed/3}$

Tense	Model	Example
Present	have / has + + been + $V_{ed/3}$	The work **has** *just* **been done**.
Past	had + been + + $V_{ed/3}$	The work **had been done** *by 5 o'clock / before he came*.
Future	will have + + been + $V_{ed/3}$	The work **will have been done** *by 5 o'clock / before he comes*.

2.38. Rewrite the following sentences in perfect passive, as in the model.

Model: The teacher **has explained** the rule.
The rule **has been explained** by the teacher.

1. I will have answered all the business letter by noon.
   All the business letters … by me by noon.
2. The President has opened the new research center.
   The new research center … by the President.
3. John will have received the papers by tomorrow.
   The papers … by John by tomorrow.
4. We have given the new computers to our colleagues.
   The new computers … to our colleagues by us.
5. The specialist had tested the machines.
   The machines … by the specialist.
6. John had written the report.
   The report … by John.
7. We have not informed the people.
   The people … by us.
8. Have they noticed us?
   … we … by them?

Revising Tenses of the Passive Voice

2.39. Correct the mistakes.

1. Don't bring the article today. It *will be being typed* only tomorrow.
2. The book which was written last month *is discussed* a lot now.
3. When I came, an experiment *was carrying out* in the lab.
4. This article *will be translated* by Monday.
6. We *were being given* the new equipment two days ago.
7. The work *was finished* by yesterday evening.
8. The machines *are* always *being tested* before use by a specialist.
9. Paper *was made* from wood.
10. The test *had* already *been written* by them.

2.40. Translate the following sentences.

1. The most difficult problems are never solved immediately.
2. The methods of radio engineering are now being used in various fields of science and technology.

3. Much attention is given to the development of radio engineering.
4. The work will have been done before he comes.
5. The young scientist was invited to take part in the conference.
6. We have already been invited to the conference.
7. The laboratories of our Institute are equipped with modern devices.
8. The results of these experiments will be published in a scientific journal.
9. The equipment is being shown to the students by the lab assistant now.
10. The scientific and technological progress of the country is determined by the qualification of specialists.
11. What exercises were done by them in class?
12. The translation of the article will have been finished by the end of the week.
13. Unfortunately, these questions were not touched upon at the conference.
14. The results of the tests are being discussed by the students of our group.
15. In our university theory is accompanied by laboratory works.
16. When we came, we were told a lot of interesting stories.
17. A lot of magazines on my specialty are published in our country.
18. Nothing has been told about this to me.

Test yourself

2.41. Choose the correct variant.

1. На занятиях по английскому языку уделяется много внимания практике устной речи.
   a) was paid b) had been paid c) is paid
3. Я разговаривал с ним вчера вечером с 7 до 8 часов.
   a) am talking b) was talking c) talked
4. Я буду ждать вас в 5 часов завтра.
   a) will wait b) am waiting c) will be waiting
5. Я закончил работу до того, как он пришел.
   a) had finished b) has finished c) finished
6. Я сейчас пишу доклад, не беспокойте меня.
   a) write b) am writing c) writes
7. В теннис играли вчера в 5 часов.
   a) was being played b) is being played c) was played
8. Я переведу этот текст завтра до 2 часов.
   a) will have translated b) will translate c) will be translating
9. Нас пригласят к нему, я уверен.
   a) are invited b) will be invited c) will have invited
10. Какой вопрос сейчас обсуждается? – Обсуждается работа нашей группы.
   a) discusses b) is discussed c) is being discussed

11. Они построили новый университетский корпус к началу учебного года.
a) built b) had built c) have built
12. Статью только что опубликовали.
a) has been published b) had been published c) was published
13. Мы изучаем английский язык дважды в неделю.
a) are studying b) study c) studies
14. Мы только что провели важный эксперимент.
a) have made b) made c) has made
15. Он начал изучать английский язык два года назад.
a) began b) has begun c) was beginning
16. Работу закончат завтра к 6 часам вечера.
a) will be finished b) will have finished c) will have been finished
17. Доклад был написан к 1 декабря.
a) had been written b) has been written c) will have been written
18. Он выполнит это задание, если вы ему поможете.
a) will do, will help b) will do, help b) will do, helps

Unit 3. GADGETS

Text A What Are the Different Types of Laptop Gadgets?
Text B The Five Laptop Gadgets
Listening: Top Laptop Coolers
Grammar: Functions of the verbs *to be, to have*
Multifunctional words *one (ones), that (those), it*

Text A

WHAT ARE THE DIFFERENT TYPES OF LAPTOP GADGETS?

3.1. Read the following words and expressions and try to guess their meaning.

Popularity, user comfort, portability, monitor, typical, top priorities, market, notebook, cable, data, popular laptop gadgets, standard battery, optimal, regular, portability, peripherals, station, platform, printer.

3.2. Read the following words and mind their pronunciation.

exterior	[ɪk'stɪərɪə]	particularly	[pə'tɪkjələlɪ]
comfort	['kʌmfət]	concern	[kən'sɜːn]
luggage	['lʌgɪʤ]	thumb	[θʌm]

Memorize the following words and expressions

accessories	*аксессуары (комплектующие)*	**lock**	*замок, блокировка*
exterior	*внешний*	**to tamper (with)**	*портить, наносить ущерб*
to encrypt	*шифровать*	**to treat**	*относиться (к чему-либо определённым образом)*
portable	*мобильный; переносной*	**to prevent**	*предотвращать*
thumb drive	*флэш-накопитель*	**to restrict**	*ограничивать*
to run out	*кончаться; истекать*	**peripherals**	*внешнее оборудование*

3.3. Read the text.

WHAT ARE THE DIFFERENT TYPES OF LAPTOP GADGETS?

The popularity of laptop computers has led to several types of laptop accessories. Some laptop gadgets are meant to protect the computer, such as laptop bags that protect the exterior and encrypted hard drives that keep the interior safe. Other types of laptop tools can extend the use of the computer, such as extended life batteries and car chargers. Some tools focus more on the user's comfort than portability, which is why external monitors, keyboards and mice are often made just for the typical laptop. They are particularly helpful for people who use a laptop in place of a desktop, because those users likely spend several hours on this type of computer.

Many laptop owners pay a lot of money for this small, portable type of computer, which is why protecting it is often among their top priorities. There are several kinds of laptop bags on the market, such as messenger bags, backpacks, briefcases and bags with wheels. Many users are more concerned about what is inside the notebook, prompting them to get a cable and a lock to prevent people from tampering with the data inside. Other laptop gadgets centered on security include an encrypted hard drive or thumb drive, both of which can restrict access to only the owner of the computer.

Laptop owners often take this type of computer with them everywhere they go, which means that a long battery life is important because an outlet is not always available. One of the most popular laptop gadgets is an extended-life battery, which allows laptops to work for several hours more than a standard battery permits. People who are going on long trips usually need to bring a charger to recharge their laptop after the extended battery runs out of power, but a traditional power cord might not be optimal if regular outlets are available. For this reason, one of the laptop gadgets on the market is a car adapter that allows laptop owners to charge their computer through their car's power outlet as they drive.

Some notebook users, however, treat their laptop like a desktop computer, so portability is not at the top of their list when shopping for laptop gadgets. They might, therefore, be interested in adding a mouse and ergonomic keyboard to the computer, which can provide a little more comfort for long-term use. Some users also prefer to attach a monitor to the notebook so they get more screen space, especially if they plan to watch movies from the computer. Of course, most notebooks have limited space for peripherals to plug in, which is why docking stations are often used. A docking station is a platform with plenty of space for peripherals to be plugged in, which means that the laptop itself only has to be connected to the station, allowing users to have a printer, mouse, monitor or other peripherals connected to the laptop at the same time.

Source: http://www.wisegeek.net/what-are-the-different-types-of-laptop-gadgets.htm

Notes to the text

car charger	*автомобильное зарядное устройство (адаптер для подключения портативного электронного устройства , например, сотового телефона, и т. п.) и/или зарядки его батареи от сети электропитания автомобиля. Обычно запитывается через "прикуриватель" (cigarette-lighter adapter)*
ergonomic keyboard	*эргономичная клавиатура (разработана с учётом требований эргономики, - чтобы было удобно работать, уменьшался риск профессиональных заболеваний и т. п.*
docking station	*установочная станция; проф. док (стационарное устройство для установки портативного компьютера, обеспечивающее подключение к нему всевозможного внешнего оборудования)*

3.4. Match these terms with their definitions.

1. to encrypt	a) on the outside
2. accessory	b) to make changes to something without permission especially in order to damage it
3. portable	c) designed to improve people's working conditions and to help them work more efficiently
4. to tamper	d) to put information into a special form (code) especially in order to stop people being able to look at or understand it
5. exterior	e) to finish your supply of something; to come to an end
6. to restrict	f) something that is most important or that you must do before anything else
7. peripheral	g) an extra item that is added to something and is useful or attractive but not of great importance
8. priority	h) to put a limit on somebody / something
9. ergonomic	i) a piece of equipment that is connected to a computer, for example a printer
10. to run out	j) that can be moved or carried easily

3.5. Which word is extra in the line?

1. accessories	additions	attachments	attributes
2. exterior	solar	outer	external
3. to enlarge	to encrypt	to hide	to encode
4. handy	portable	creamy	compact
5. extended	brightened	prolonged	enlarged
6. current	device	gadget	tool
7. entry	access	connection	gravitation

8. comfortable	ergonomic	static	fitting
9. to finish	to belong	to run out	to expire
10. consumer	adapter	connector	junction

3.6. Match the words in columns A and B to make the expressions and translate them.

A	B
1. docking	a) hard drive
2. ergonomic	b) safe
3. car	c) battery
4. messenger	d) keyboard
5. encrypted	e) priority
6. to restrict	f) station
7. extended-life	g) access
8. to run out	h) bag
9. top	i) power
10. to keep the interior	j) charger

3.7. In the text find the English equivalents of the following words. The number of the lines is equal to the number of the letters to insert.

1. защищать	a) p _ _ _ _ _ _
2. расширять, распространять	b) e _ _ _ _ _
3. мобильность	c) p _ _ _ _ _ _ _ _ _ _
4. полезный	d) h _ _ _ _ _ _
5. настольный компьютер	e) d _ _ _ _ _ _
6. владелец	f) o _ _ _ _
7. безопасность	g) s _ _ _ _ _ _ _
8. доступ	h) a _ _ _ _ _
9. позволять	i) a _ _ _ _
10. доступный	j) a _ _ _ _ _ _ _ _

3.8. Match the beginnings of the sentences with their endings.

1. The popularity of laptop computers has led …	a) which is why docking stations are often used.
2. There are several kinds of laptop bags on the market, …	b) especially if they plan to watch movies from the computer.
3. One of the most popular laptop gadgets …	c) so portability is not at the top of their list when shopping for laptop gadgets.
4. Some notebook users, however, treat their laptop like a desktop computer, …	e) to several types of laptop accessories.

5. Of course, most notebooks have limited space for peripherals to plug in, …	f) is an extended-life battery, which allows laptops to work for several hours more than a standard battery permits.
6. Other types of laptop tools can extend the use of the computer, …	g) such as messenger bags, backpacks, briefcases and bags with wheels.
7. Some users also prefer to attach a monitor to the notebook so they get more screen space, …	h) such as extended life batteries and car chargers.

3.9. Choose the best word to complete the sentences.

1. Some laptop gadgets are meant to *protect / decorate* the computer, such as laptop bags that protect the exterior and encrypted drives that keep the interior *secret / safe*.
2. Some tools focus on the user's *comfort / pleasure* than portability, which is why external monitors, keyboards and mice are often made just for the *attractive / typical* laptop.
3. Many users are more *dissatisfied / concerned* about what is inside the notebook, prompting them to get a cable and a lock to *prevent / exclude* people from tampering with the data inside.
4. People who are going on long trips usually need to bring a *key / charger* to recharge their laptop after the extended battery runs out of power, but a traditional power cord might not be optimal if regular *outlets / cords* are available.
5. A docking station is a *keyboard / platform* with plenty of space of peripherals to be plugged in, which means that the laptop itself only has to be connected to the *socket / station*, allowing users to have a printer, mouse, monitor or other peripherals connected to the laptop at the same *time / order*.

3.10. Choose the correct question to the following answers.

1. A portable type of computer.

a) Which type of portable computer is the least expensive?
b) Which type of computer can be taken by the owners everywhere they go?
c) What can be restricted due to a thumb drive?

2. An extended-life battery.

a) What prolongs the outlet of the portable computers if the owners are going on long trips?
b) What do owners of the laptop computers take to recharge their computer if necessary?
c) What is used as desktop computer?

3. Like a desktop computer.

a) What do laptop bags look like?
b) How long does an extended-life battery work?
c) How do some notebook users treat their laptop?

4. A car adapter.

a) What allows laptop owners to charge their computer while travelling in a car?
b) What is not at the top of the list of some notebook users when shopping for laptop gadgets?
c) What laptop gadget restricts access to only the owner of the computer?

5. The user's comfort.

a) On what do laptop owners rely more in their choosing laptop bags?
b) On what does the work of the outlet depend?
c) On what do some tools focus more: the user's portability or comfort?

6. Because an outlet is not always available.

a) Why is the use of a long battery life important for the laptop owners?
b) What do people have to take for a long journey to recharge their laptop?
c) Why do some notebook users have to add a mouse and ergonomic keyboard to the computer?

7. They get more screen space.

a) What is helpful for watching movies from the computer on a more screen space?
b) Why do some users prefer to attach a monitor to the notebook?
c) Why are docking stations often used in the laptop operation?

8. Because they pay a lot of money for them.

a) What is the reason for buying laptop bags?
b) Why are thumb drive laptop gadgets most preferably used by computer owners?
c) Why is protecting portable types of computer among top priorities of many laptop owners?

3.11. Read the following sentences and say whether they are true (T) or false (F).

1. Many laptop owners don't care much about their portable types of computers as they are rather cheap.
2. The popularity of laptop computers has led to the appearance of several types of laptop accessories.
3. Many users of the laptop computers are concerned about the prevention of other people from tampering with the data inside.

4. A docking station is a platform with hardly any space for peripherals to be plugged in.
5. Laptop bags do not only protect the exterior, but also the interior.
6. A printer, mouse, monitor and other peripherals are interconnected with the help of only the keyboard.
7. There are only briefcases as laptop bags on the market.
8. Thumb drive and an encrypted hard drive can't restrict access to only the owner of the computer.

3.12. Imagine that your laptop does not operate properly. You ask the laptop operator to find out the reason. During the repair process you ask him questions concerning the use of different laptop accessories.

Text B

THE FIVE LAPTOP GADGETS

3.13. Read the following words and expressions and try to guess their meaning.

Cigarette, electronic, MP3 player, USB port, universal, flash drive, information, alternative, cylindrical, version, electric energy, element, popular styles, line, ergonomic, neutral, model, person, laptop, functionality, scanner, monitor.

3.14. Read the following words and mind their pronunciation.

vehicle	['viːɪkl]	rechargeable	[ˌriː'ʧɑːʤəbl]
proprietary	[prə'praɪət(ə)rɪ]	alternative	[ɔːl'tɜːnətɪv]
preserve	[prɪ'zɜːv]	ergonomic	[ˌəːgə'nɒmɪk|

Memorize the following words and expressions

data storage device	*устройство хранения данных*	**a short**	*короткое замыкание*
thumb drive = flash drive	*флеш-драйв, флеш-память, **разг.** флешка*	**rechargeable**	*перезаряжаемый*
re-writeable	*перезаписываемый*	**to split**	*разделяться, делиться на части*
to preserve	*сохранять, сберегать*	**external hard drives**	*внешний жесткий диск*
power cord	*шнур питания*	**shape**	*форма*
flammable	*огнеопасный*	**dock**	*разъем*

3.15. Read the text.

THE FIVE LAPTOP GADGETS

A **car charger** is a device that plugs into the 12-volt cigarette lighter outlet inside a vehicle, then connects to an electronic device such as a cell phone or MP3 player to charge the battery. The cell phone will typically connect to the car charger through a USB port or simple power cord. Though there are many "universal" car chargers available, unfortunately many cell phones use a proprietary design, and it is often necessary to purchase a new car charger with every new cell phone.

A **thumb drive**, also called a "flash drive" or "jump drive", is a portable solid-state data storage device. It is re-writeable and preserves information without a power supply. Thumb drives will fit into any USB port on a computer. They can also be "hot swapped," which means a user can plug the drive into a computer and will not have to restart it to access the thumb drive. The drives are quite small, about the size of a human thumb and can safely be tossed into a pocket or purse without fear of damage.

Lithium polymer (LiPoly) batteries are often used as an alternative to lithium ion batteries for several reasons. First, lithium ion batteries have lithium tightly contained within them and because they are so powerful, if a short occurs inside them, it can lead to flames. Cylindrical in shape, lithium ion batteries look more like a larger version of AA batteries rather than the narrow, flat, lithium polymer batteries. Both lithium ion and LiPoly batteries are available in rechargeable versions, but lithium polymer batteries are not as prone to flammability as lithium ion batteries are.

Zinc-based batteries are another alternative to lithium ion batteries as they are long lasting, not easily flammable, and are more environmentally friendly than lithium ion batteries. However, lithium is a popular battery choice as it gives the biggest amount of electric energy possible in energy per unit weight of all solid elements.

One of the more popular styles of an **ergonomic computer keyboard** is the split keyboard. A traditional keyboard has the keys arranged in a straight line while a split ergonomic computer keyboard has a gap in the middle of the keyboard that divides the keys into two separate halves. Many of these types of ergonomic keyboards arrange the key halves in the shape of a V, allowing the hand and wrist to move in a more neutral, less stressful way.

A **docking station** is a bridge to the past for many newer computers, but users might find that they need one even if they have the latest model. It's a device into which a person can plug a laptop in order to gain extra functionality, such as access to printers, mice, scanners, full-sized monitors and keyboards, and external hard drives. All of these peripherals can be plugged into the dock, and then, when the user connects the laptop, he can gain access to all of those peripherals without having to plug each one into the computer. This can be especially helpful if the laptop has a minimal number of USB or Firewire® ports.

Sources:

http://www.wisegeek.com/what-is-a-car-charger.htm
http://www.wisegeek.org/what-is-a-thumb-drive.htm
http://www.wisegeek.com/what-are-lithium-polymer-batteries.htm
http://www.wisegeek.net/what-is-an-ergonomic-computer-keyboard.htm
http://www.wisegeek.org/what-is-a-docking-station.htm

Notes to the text

hot swapping	*"горячая" замена, замена во время работы, подсоединение и отсоединение периферийных устройств, модулей или других блоков системы без прерывания её функционирования.*
AA battery	*тип 1,5-В батареек, применяемых для питания карманных и других электронных устройств*
FireWire	*шина FireWire (высокоскоростная последовательная шина для передачи цифровых данных между периферийными устройствами, в том числе бытовыми аудио- и видеоустройствами)*

3.16. Put the letters in the correct order to make the word that is described.

1. fhasl ivred	a small device that you can carry around with you which is used for storing and moving data onto a computer
2. ptils	to divide or share something
3. resverpe	to keep something safe or in good condition
4. mabllfame	able to burn easily
5. oncimreog	designed to improve people's working conditions and to help them work more efficiently
6. rahcreg	a piece of equipment for loading a battery with electricity
7. ccssea	the chance or right to use or have something
8. htmuili	a soft, very light, silver-white metal that is used in batteries
9. wertalenirb	supporting overwriting of previously recorded data
10. ckod	a device in which a laptop, smartphone, or other mobile device may be placed for charging, providing access to a power supply and to peripheral devices or auxiliary features

3.17. Give definitions to the following items.

1. vehicle	5. solid-state
2. rechargeable	6. flat
3. power supply	7. gap
4. proprietary	8. wrist

3.18. Find the words in the text with the opposite meaning.

1. connected	5. fireproof
2. to sell	6. unhandy
3. to finish	7. flexible
4. wide	8. uncomfortable

3.19. Complete the following sentences with the words and expressions from the box (use the correct forms).

rechargeable	**docking station**	**thumb drive**	**dock**	**restart**
short	**plug into**	**FireWire**		

1. I use my USB … for file transfer because it's easier than a CD-R.
2. An internal … can cause the battery cells to overheat, posing a fire hazard to consumers.
3. I have a … next to my bed where my phone gets plugged – I also have another one at my computer desk.
4. The computer could not be … , so the programme returned to the national network.
5. Special features include a state-of the-art entertainment system and a … for notebooks and iPods.
6. The pocket charger is powered by a … lithium polymer battery and requires no electrical outlet.
7. The base station comes with two cables – one … your broadband router, the other into your landline phone socket.
8. This module enables connectivity with … storage devices and scanners.

3.20. Arrange the sentences in their logical order.

1. a portable / storage / drive / is / solid-state / data / a thumb / device
2. will / any / on / USB port / fit into / thumb / drives / a computer
3. are / about / of / a human / the drives / thumb / quite / the size / small,
4. polymer / are often / as / batteries / lithium ion / used / several reasons / for / lithium / batteries / an alternative to
5. if / occurs / lithium ion / it / batteries, / inside / a short / lead to / can / flames
6. the more / styles / computer / is / the split / keyboard / one of / popular / of an ergonomic / keyboard
7. a bridge / for / to the past / a docking / is / many / computers / newer / station

3.21. Complete the sentences about "The Five Laptop Gadgets". Use English equivalents instead of the Russian words and phrases in brackets.

1. A car charger is a device that plugs into the 12-volt cigarette lighter outlet inside a *(машины)*, then connects to an electronic device such as a cell phone or MP3 player to *(зарядить)* the battery.
2. A traditional keyboard has the keys arranged *(по прямой линии)* while a split ergonomic computer keyboard has a *(промежуток)* in the middle of the keyboard that *(разделяет)* the keys into two separate halves.

3. Both lithium ion and LiPoly batteries are available in *(перезаряжаемых)* versions, but lithium polymer batteries are not as prone to *(воспламеняемости)* as lithium ion batteries are.
4. All of these peripherals can be plugged into the dock, and then, when the user *(соединяет)* the laptop, he can *(получить доступ)* to all of those peripherals without having to plug each one into the computer.
5. Thumb drives can also be "hot swapped", which means a *(пользователь)* can plug the drive into a computer and will not have to *(возобновить)* it to access the thumb drive.
6. Though, there are many "universal" car chargers available, unfortunately many cell phones *(используют)* a proprietary design, and it is often necessary to *(купить)* a new car charger with every new cell phone.

3.22. Make up questions to which the following statements will be the answers.

1. Both lithium ion and LiPoly batteries.
2. In a straight line.
3. A gap in the middle of the keyboard.
4. It is a device into which a person can plug a laptop to gain extra functionality.
5. Access to printers, mice, scanners, full-sized monitors.
6. A thumb drive.
7. "A flash drive" or "jump drive".

3.23. Read the following sentences and say whether they are true (T) or false (F).

1. Zinc-based batteries are another alternative to lithium ion batteries as they are long lasting, not easily flammable.
2. Lithium is a popular battery choice as it gives the smallest amount of electric energy possible in energy per unit weight of all solid elements.
3. The thumb drives are quite small and can safely be tossed into a pocket or purse without fear of damage.
4. Lithium ion batteries look flat in shape.
5. Many ergonomic split keyboards arrange the key halves in the shape of a W.
6. A docking station is a bridge to the past of many newer computers.
7. Lithium polymer batteries are as prone to flammability as lithium ion batteries.
8. If a short occurs inside lithium batteries, it can lead to flames.

3.24. Prepare a talk on the theme: Why is it necessary for a laptop owner to know the types and work of the batteries and other laptop devices?

Top Laptop Coolers

https://www.youtube.com/watch?v=W7ipETywbV4&nohtml5=False

3.25. You are going to watch a video about "Laptop Coolers". Before watching it, match these terms with their definitions.

1. downfall	a) the outside part or uppermost layer of something
2. to extend	b) to use or be used until no longer in good condition or working order
3. advantage	c) that will not break easily
4. notch	d) a loss of power, prosperity, or status
5. rubber	e) to turn or to make something turn round quickly
6. sturdy	f) a favourable or desirable feature
7. to bend	g) a tough elastic polymeric substance made from the latex of a typical plant or synthetically
8. surface	h) to make something that was straight into a curved shape
9. to spin	i) an indentation or incision on an edge or surface
10. to wear out	j) to make something longer or larger

3.26. Match the parts of phrases from the video and translate them.

1. noise	a) pad
2. silent	b) vent
3. adjustable	c) port
4. rubber	d) fan
5. to wear	e) construction
6. typing	f) headphones
7. to increase	g) level
8. sturdy	h) dial
9. intake	i) airflow
10. USB	j) angle

3.27. Watch the video again and choose the best word to complete the sentences.

1. What makes the Havit cooler so special is the combination of its *slim /stout* design, sturdy construction, high airflow, and silent *waves / fans.*
2. Some people think a larger fan will produce more *warmth / noise* and it's actually opposite.

3. A good runner up is the Cooler Master NotePal X-Slim which has a lot of the same advantages of the Havit Cooler but its biggest *downfall / drag* is the noise.
4. If you're playing games or watching movies on your laptop then you absolutely need a *cooler / battery.*
5. One of the worst things you can do to your laptop is to leave it on a soft *sand / surface,* like your bed for a long period of time.
6. The metal top is very *sturdy / stuffy* and doesn't bend like a lot of other coolers.
7. The cool looking blue fans do an amazing job at pushing a ton of air evenly over the *flesh / bottom* of your laptop.

3.28. Choose the correct answer to make the sentences complete.

1. The metal top of the laptop is very sturdy and doesn't … like a lot of other coolers.
   a) betray b) bend c) benefit
2. Make sure to keep up … with future reviews by subscribing to them.
   a) to date b) to order c) to business
3. I was very worried because of how thin the metal top is and how … my laptop is.
   a) unsteady b) unreliable c) heavy
4. A nice sturdy metal top with large … pads will keep your laptop in place.
   a) rubber b) ruddy c) rugged
5. I am constantly moving my laptop around but the extremely … frame works perfectly for me.
   a) ridgy b) rigid c) redoubled
6. The Thermaltake Massive23 rocks at everything … airflow.
   a) except b) despite c) besides
7. If noise isn't an issue for you because you wear … , then the Cooler Master is a great ... .
   a) rubbers; invention b) glasses; illusion c) headphones; choice
8. Laptop coolers are super important for better … and longer life of your laptop.
   a) design b) performance c) protection

GRAMMAR

Functions of the verbs *to be, to have*

Table 3.1

The verb *to be*

Function	Example
Main verb	The device **was** in the lab. The device **is** in the lab.
Part of predicate	They **are** still waiting for him. The work **was** finished in time. This question **is being** widely discussed at the seminar now. Some important problems **have been** solved.
Modal verb	The teacher **is** to come at five.

3.29. Point out the function of the verb *to be* in the following sentences and translate them.

1. They **are** carrying out a series of new experiments this month.
2. The main features of the latest smartphone **were** referred to in that email.
3. Most of the Internet host computers **are** in the USA.
4. He **was** to inform me about the results of his work.
5. These students **were** at the conference last month.
6. The easiest way to make free long-distance calls **is** to use VoIP.
7. The idea **is** to transfer the knowledge to others in order to improve efficiency.
8. The students **are** to read the text twice and then reproduce it.
9. The technological revolution **is** producing an explosive change in computers' hardware and software.
10. This research method had already **been** universally applied by the end of the last week.
11. The application **is being** tested for bugs at the moment.
12. GSM **is** a worldwide standard for mobile phones.
13. The lecture **is** to begin at eight.
14. The work has **been** partially done by the students.
15. The summit meeting **was** followed by a press-conference.

Table 3.2

The verb *to have (got)*

Function	Example
Main verb	They **have (got)** new laboratory equipment.
Part of predicate	We **have** introduced a new system of work.
Modal verb	I **have to** buy another newspaper.

3.30. Point out the function of the verb *to have (got)* in the following sentences and translate them.

1. This material **has** many valuable qualities.
2. She **had** worked as a secretary before she entered the university.
3. The students **had** to translate this text in time.
4. They **have** given him all the necessary information.
5. Before the next term begins, he **will have** returned from the scientific conference.
6. The teacher **has** to send the text message.
7. I **haven't** got the latest edition of "Technical News".
8. When we arrived, the meeting **had** already begun.
9. They **have** difficulties with this new installation.
10. If we are to deal with the problem, we **have** to conduct a series of experiments.
11. His report at the conference was very long, but he **had** no new ideas to suggest.
12. **I'll have** finished writing my project long before you get back
13. There is no choice. You **have** to finish the work in time.
14. **Has** anyone in your group ever purchased software?
15. A scientist doesn't **have** to believe anything but facts.

Multifunctional words *one (ones), that (those) it*

Table 3.3

One (ones)

Function	Example
Numeral (Number)	**One** example is enough.
Empty subject	**One** must work hard to get good results.
Empty object	This enables **one** to observe and record all the changes.
Substitute	I haven't got a dictionary. I must buy **one**.

3.31. Choose the best translation paying attention to the function of the word one *(ones)*.

1. ***One*** *must study a lot to become a specialist.*
   a) Task number one for a future specialist is studying much.
   b) It is necessary to study much to become a specialist.
   c) One thing to become a specialist is surely to study much.
2. *We must write only* ***one*** *exercise now.*
   a) The only exercise from this text-book is written by us.
   b) We needn't write any more exercises now, only one.
   c) The number of the exercise we have to do is one.
3. ***One*** *can read such a text without a dictionary.*
   a) No dictionary will help one to read such a text.
   b) Reading such a text without a dictionary depends on one's ability.
   c) It is possible to read such a text without a dictionary.
3. *The advanced method allows* ***one*** *to get good results.*
   a) One can achieve good results using this advanced method.
   b) One is not allowed to get good results because of this advanced method.
   c) The usage of the achieved results is possible due to this advanced method.
4. *Our old laboratory equipment was much worse than the new* ***one****.*
   a) The new laboratory equipment is one of the best.
   b) The new laboratory equipment is much better than the old equipment.
   c) Our old laboratory equipment is was bad.

Table 3.4

That (those)

Function	Example
Demonstrative pronoun	Give me **that** textbook, please. I like **those** books.
Substitute	The work of the new device is much more efficient than **that** of the old one.
Relative pronoun	Spaceships can cover distances **that** are measured in millions of kilometers.
Conjunction	**That** he failed in his examination did not surprise anybody.

3.32. Translate the sentences paying attention to the functions of *that (those)*.

1. Mendeleev is a scientist **that** is known all over the world.
2. **That** computers and robots are important for industrial uses is well known to scientists and engineers.

3. **That** programmer works in our university.
4. This method of work is much more efficient than **that** of your team.
5. Machine code consists of the binary codes **that** are processed by the CPU.
6. The simplest materials are **those** which have only one kind of atoms.
7. **That** the profession of an engineer requires a special training is a well-known fact.
8. These methods are much more advanced than **those** used in our laboratory.

Table 3.5

The pronoun *It*

Function	Example
Subject / Object (personal)	Repeat the experiment. **It** is very important. I've read your report. I liked **it**.
Subject (demonstrative)	What is this? **It** is a new device.
Subject (impersonal)	**It** is cold in the laboratory.
Emphasis	**It** was D.I. Mendeleyev who published the Periodic Law of Elements in 1869.

3.33. Point out the function of the pronoun *it* in the following sentences and translate them.

1 - personal subject; 2 - demonstrative subject; 3 - impersonal subject; 4 - personal object; 5 - emphasis

1. **It** is a new subject. **It** is very important for our future speciality. (…)
2. **It** is the most interesting article on this subject. (…)
3. **It** is this question that we are interested in. (…)
4. The discussion was very interesting, but some students failed to take part in **it**. (…)
5. **It** was obvious that something important had happened. (…)
6. You have written a report. I've checked **it**. (…)
7. What is this? **It** is a new device. (…)
8. **It** was not easy to study at the university. (…)
9. **It** is known that the inductance is measured in henries. (…)
10. **It** is in their calculation that the mistake is made. (…)
11. Our students study strength of materials. **It** is a very difficult subject. (…)
12. **It** is possible that the problem will be solved. (…)
13. **It** is necessary, to test these devices. (…)
14. It is perhaps for this reason that their results are not acceptable. (…)

15. Electronics engineering is the largest field of engineering. **It** is concerned with the systems and devices that use electric power. (…)
16. **It** is known that the radio was invented by A. Popov. (…)
17. **It** is a new device. **It** is very necessary for our future experiment. (…)
18. **It** is a viewpoint that I cannot describe in a few words. (…)
19. A material which allows electricity to flow through **it** is called a conductor. (…)
20. **It** is no good understanding the meaning of a word if you do not know how to use **it**. (…)

Unit 4. THE INTERNET

Text A *The Internet Inventors*
Text B *Web Browsers*
Listening: **The Internet of Things**
Grammar: **Participles I, II;**
Absolute Participle Constructions

Text A

THE INTERNET INVENTORS

4.1. Read the following words and expressions and try to guess their meaning.

Corporation, strategic, problem, operations, packets, global, individuals, communication, protocol, project, technical, prototype, receiver, billion, standard, logical, mathematicians.

4.2. Read the following words and mind their pronunciation.

prehistory	[priːˈhɪstri]	via	[ˈvaɪə]
destination	[dɛstɪˈneɪʃ(ə)n]	nuclear	[ˈnjuːklɪə]
awesome	[ˈɔːs(ə)m]	message	[ˈmɛsɪdʒ]
introduce	[ɪntrəˈdjuːs]	fascinating	[ˈfasɪneɪtɪŋ]
prototype	[proʊtətaɪp]	research	[rɪˈsəːtʃ]

Memorize the following words and expressions

to propose	*предлагать*	**destination**	*место назначения*
foremost	*выдающийся, знаменитый*	**to participate**	*принимать участие*
nuclear	*ядерный, атомный*	**“killer application”**	*программа вне конкуренции*
think-tank	*«мозговой центр»*	**relevant**	*актуальный*
data packet	*пакет данных*	**prototype**	*образец, модель*
network	*сеть*	**to carry out**	*выполнять*
router	*маршрутизатор*	**to steer**	*направлять; руководить*

4.3. Read the text.

THE INTERNET INVENTORS

In 1979 Paul Baran, Vint Cerf, Jon Postel and Bob Braden proposed the Internet conception.

Its prehistory dates back to the early 1970s when the RAND Corporation, America's foremost Cold War think-tank, faced a strategic problem. The question was: how could the US Army communicate under circumstances of nuclear war, in zones involved into military operations? It was the Internet that became the answer. Each message is split into data packets and sent out via the computer network. Then is goes to its destination by whatever route was available, passing through many other computers, each of them being a part of the global network. In case one packet is missing, a receiver asks a sender to send the missing packet again. The above mentioned individuals were carrying out that research.

In 1959 Baran joined RAND Corporation. He designed a "survivable" communications system that could keep working across long distances even if hit by nuclear weapons. Baran proved that by dividing communication into short packages, the packages could be easily rerouted when a part of the network was lost. Special computers (called "routers") would steer the packages around the network toward their final destinations. This later became the basic design of the Internet.

Vint Cerf, also known as the Father of the Internet, invented computer protocols for the DARPANet, which allowed communication between computers of various types.

Jon Postel was the Project Leader for one of the National Science Foundation Project and the Gigabit Network Communication Research Project. These two highly technical projects were completely incomprehensible to those who were not foremost scientists like Jon Postel. Postel had a M.Sc. degree in Engineering and a Ph.D. in Computer Science.

But the most relevant figure in Internet creating was a young Englishman who single-handedly made the World Wide Web. His name is Tim Berners-Lee. Actually, he did not participate in creating the Internet itself, but he designed the World Wide Web, the "killer application" of the Internet. The Web is the reason for which millions of people dive into the Net. Even though still in its infancy, the Web is fascinating, it's a global library. Once it's fully formed, it could be awesome. Tim Berners-Lee's Web is what transformed the Net from academic back-water into the global stream of fresh water it is today.

Tim Berners-Lee created the Web at the age of 32. At the same age Bill Gates was on his way to his first billion. Like Gates, Berners-Lee was introduced to computers while still a child - his parents were mathematicians. On graduating from Oxford, he developed the first Web prototype in 1980 for his personal use. Nowadays, he expects the Web to become a place where one could find any fact about anything quickly and cheaply.

The Web let the Net be used in a logical way. It created a standard that everybody could - and did - follow.

Notes to the text

RAND Corporation	*Научно-исследовательская корпорация РЭНД (США)*
DARPANet (Defense Advanced Research Project Network)	*Сеть Агентства оборонных перспектив исследовательских разработок*

4.4. Guess what words from the text A are defined below.

1. a number of computers that are connected together so that they can share information;
2. the place to which one is going or directed;
3. most important or best; leading;
4. a piece of electronic equipment that connects computer networks to each other, and sends information between networks;
5. a unit of data that is sent over a computer network;
6. a group of experts brought together, usually by a government, to develop ideas on a particular subject and to make suggestions for action;
7. the first example of something, such as a machine or other industrial product, from which all later forms are developed;
8. connected with what is happening or being discussed.

4.5. Complete the sentences about the Internet inventors. Use English equivalents of the Russian words and phrases in brackets.

1. The Web is the reason for which millions of people *(погружаются)* into the Net.
2. In 1979 Paul Baran, Vint Cerf, Jon Postel and Bob Braden proposed *(понятие Интернет).*
3. Each *(сообщение)* is split into data packets and sent out via the computer network.
4. Tim Berners-Lee created the Web *(в возрасте 32 лет).*
5. *(Подобно Гейтсу)*, Berners-Lee was introduced to computers while still a child – his parents were *(математики).*
6. In case one packet is missing, a receiver asks *(отправителя)* to send the missing packet again.
7. Vint Cerf, *(кто также известен как отец Интернета)*, invented computer protocols for the DARPANet, which allowed communication between computers of various types.

4.6. Complete the following sentences with the words from the box.

message	**proposed**	**packet**	**network**	**relevant**
foremost		**prototype**	**Web**	

1. We've just spent $1.9 million on improving our computer ... .
2. Creating different combinations of the ... is the next design challenge for this project.
3. She is one of the ... experts on child psychology.
4. I spent the afternoon surfing the ... .
5. The scientist ... a new theory.
6. Your information ... includes a map and a schedule of all the events at the conference.
7. For further information, please, refer to the ... leaflet.
8. Someone left you a ... .

4.7. Find the most suitable endings of the following sentences according to the information in the text.

1. At the same age Bill Gates	a) which millions of people dive into the Net.
2. Special computers (called "routers") would steer the packages around the network	b) a receiver asks a sender to send the missing packet again.
3. Tim Berners-Lee created the Web	c) and sent out via the computer network.
4. On graduating from Oxford,	d) was on his way to his first billion.
5. Jon Postel had a M.Sc. degree in Engineering	e) joined RAND Corporation.
6. The Web is the reason for	f) Berners-Lee developed the first Web prototype in 1980 for his personal use.
7. In case one packet is missing,	g) toward their final destination.
8. It was the Internet	h) at the age of 32.
9. Each message is split into data packets, ...	i) and a Ph.D. in Computer Science.
10. In 1959 Paul Baran	j) that became the answer.

4.8. Make up questions to which the following statements will be the answers.

1. Its prehistory story dates back to the early 1970s.
2. Four of them.
3. The Web is.
4. The Father of the Internet.

5. At the age of 32.
6. A “survivable” communication system.
7. Via the computer network.
8. His name is Tim Berners-Lee.

4.9. Read the following sentences and say whether they are true (T) or false (F).

1. Tim Berners-Lee made the World Wide Web single-handedly.
2. The Internet could help the US army communicate under circumstances of nuclear war, in zones involved into military operations.
3. Tim Berners-Lee was a young German man.
4. It was Bill Gates who designed communications system that could keep working across long distances even if hit by nuclear weapons.
5. The Web is the reason for which millions of people dive into the Net.
6. Vint Cerf is known as the Father of the Internet.
7. The Web let the Net be used in a logical way.
8. In case one packet of messages is missing, a receiver asks a sender to send the missing packet again.
9. Tim Berners-Lee graduated from the Cambridge University.
10. The Web is considered to be a global village.

4.10. Prepare a five-minute talk about the Internet inventors.

Text B

WEB BROWSERS

4.11. Read the following words and expressions and try to guess their meaning.

Browser, millions, content, photos, website, graphics, technology, service, version, icon, toolbar, corporation, market, code, user, universal, operating system, smartphone, virus, zoom.

4.12. Read the following words and mind their pronunciation.

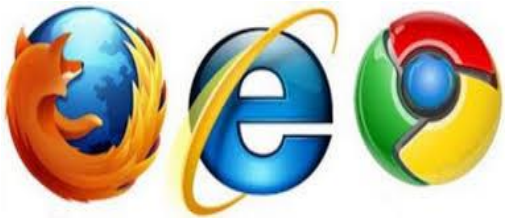
liberty	['lɪbəti]	usage	['juːsɪdʒ]
access	['ækses]	occasionally	[ə'keɪʒ(ə)n(ə)li]
view	[vjuː]	version	['vəːʃ(ə)n]
headache	['hɛdeɪk]	announce	[ə'naʊns]
technology	[tɛk'nɒlədʒi]	threat	[θrɛt]
regularly	['regjʊləli]	feature	['fiːtʃə]
advantage	[əd'vɑːntɪdʒ]	virus	[vaɪrəs]

Memorize the following words and expressions

to access	*иметь доступ*	**tabbed browsing**	*просмотр веб-страниц с использованием вкладок*
to download	*загрузить, скачать*	**to install**	*устанавливать*
loading speed	*скорость загрузки*	**toolbar**	*панель инструментов*
update	*обновление*	**feature**	*свойство, особенность*
to launch	*запускать*	**compatible with**	*совместимый с*
to release	*выпускать (новую продукцию)*	**to zoom**	*увеличивать (масштаб изображения)*
previous	*предыдущий*	**beta-version**	*пробная версия*
to support	*поддерживать*	**bookmark**	*электронная закладка*

4.13. Read the text.

WEB BROWSERS



Internet or web browsers provide you the liberty to access the millions of sites and data all around the world. With just one click you can download content, view movies and photos and also have a look at websites which have a lot of graphics attached to it. However, many times it has been noticed that web browsers don't work the way they should be working. They get slow, take a lot of time downloading stuff and also opening up a page. Now there are so many types of web browsers in the world, that it becomes hard to choose the best one.

Choosing a good browser is really very important for your surfing time. Having a useful browser can save loads of time and headaches by giving you the correct websites and also ensuring you a good loading speed. Technology is advancing on a daily basis and it's also making sure that your system is provided with the latest updates regularly. So it's very necessary that you have the best web browser on your PC so that you can take full advantages of such services and also ensure strong Internet safety.

Internet Explorer

This is the most popular and the best Internet web browser for Windows. It was developed by Microsoft in 1994 and released in 1995 as a supportive package to Microsoft Windows line of operating systems. According to statistics, its usage share from 1999 to 2003-04 was around 95%. Microsoft occasionally releases updates for the previous versions of IE, which have some enhanced capabilities. IE has come up a

preview release of Internet Explorer 10. The 'favicon', which is the short form of favorite icon, was introduced first in IE, and was later adopted by many other browsers. Initially, IE did not support tabbed browsing. But today, it can be used even in the older versions, by installing toolbars. There are regular Microsoft updates that IE supports. Favicon allows an image to be used as a bookmark. It supports Integrated Windows Authentication.

Mozilla Firefox

According to many critics Mozilla Firefox is the fastest browser in the world. It is owned by Mozilla Corporation and was the result of experimentation. 'Mozilla Firefox' was officially announced in February 2004. It was earlier named Phoenix, Firebird, and eventually Firefox. Until November 2008, 700 million downloads were recorded. Since the release of Firefox, the sale of Internet Explorer has gone down drastically. It has around 22% of the market share at present. It has undergone many updates and version changes that were made to improve usability to the universal users.

As it is an open source software, it allows everyone to access the code. It supports tabbed browsing that allows the user to open multiple sites in a single window. Session storage is also an important feature of Firefox, which allows the user to regain access to the open tabs after he has closed the browser window. It also supports all the modern features like HTML 5 and also blocks the sites which pose a potential threat to your operating system.

Opera

This browser was developed by Opera Software in 1996. It is a well-known browser that is mainly used in Internet-activated mobile phones, PDAs, and smartphones. Opera Mini and Opera Mobile are the browsers used in smartphones. It is compatible with many operating systems such as Solaris, Linux, Mac OS X, and Microsoft Windows. Not many people use it for computer operating systems, but Opera is very common in smartphones. Opera is fast, hardly crashes and is seldom attacked by viruses.

It has some common functions like zoom and fit-to-width, content blocking, tabs and sessions, download manager with BitTorrent, and mouse gestures.

Google Chrome

This web browser was developed by Google. Its beta and commercial versions were released in September 2008 for Microsoft Windows. The browser versions for Mac OS X are under development. People call the Google Chrome the "Light Weight Browser". It' been named that because of its ability to upload web-pages at a great speed and also handle JavaScript pages very effectively. Google Chrome offers you all the features which all the other web browsers have to offer. It uses a tab system for opening web pages and the browser also offers you a bookmark syncing manager to make sure that your bookmarks are always organized. Surely it is one of the best web browsers in the market today.

Source: http://www.buzzle.com/articles/best-internet-browser.html

Notes to the text

PC	*Personal Computer*
IE	*Internet Explorer*
HTML (HyperTextMarkup Language)	*язык гипертекстовой маркировки*
PDA (Personal Digital Assistant)	*«электронный помощник»*
Mac OS	*Macintosh Operating System*

4.14. Match the English terms with their definitions.

1. to download	a) a computer program which allows you to look at pages on the Internet
2. to install	b) the version of a software product used in a beta test
3. bookmark	c) when you have the right or opportunity to use or see something
4. access	d) to tell people about something officially or with force or confidence
5. toolbar	e) to copy computer programs, music or other information electronically using the Internet
6. feature	f) an address on the Internet that you record so that you can quickly find something again
7. browser	g) programs that you use to make a computer do different things
8. to announce	h) to put software onto a computer
9. software	i) a typical quality, or important part of something
10.beta version	j) on a computer screen, a row of icons (small pictures that you choose in order to make the computer do something)

4.15. In the text find the English equivalents of the following words. The number of the lines is equal to the number of the letters to insert.

1. пользователь	a) u _ _ _
2. загружать	b) d _ _ _ _ _ _ _
3. преимущество	c) a _ _ _ _ _ _ _ _
4. выпуск (продукции)	d) r _ _ _ _ _ _
5. удобство в использовании	e) u _ _ _ _ _ _ _ _
6. свойство, особенность	f) f _ _ _ _ _ _
7. общепринятый, распространенный	g) c _ _ _ _ _
8. скорость	h) s _ _ _ _
9. предлагать	i) o _ _ _ _
10. совместимый	j) c _ _ _ _ _ _ _ _ _

4.16. Match up the words which have a similar meaning.

1. to set up	a) to download
2. velocity	b) feature
3. characteristic	c) to ensure
4. to modernize	d) liberty
5. to control	e) speed
6. to copy	f) to enhance
7. freedom	g) to update
8. to advance	h) to install
9. to provide	i) to improve
10. to increase	j) to handle

4.17. Complete the following sentences with the words and expressions from the box (use the correct forms).

announce	**compatible**	**browser**	**features**	**download**	**update**
	bookmarks	**access**	**attach**	**click**	

1. You can ... this software free from their website.
2. This keyboard is ... with all of our computers.
3. Do you have Internet ... ?
4. This phone has several new ... .
5. Add this website to your ... .
6. The company has ... plans to open six new stores.
7. To start the program, ... on its icon.
8. I ... the file to the e-mail.
9. This ... supports frames.
10. I need to ... my address book.

4.18. Choose the correct word to complete the sentences according to the information in the text.

1. Internet or web browsers provide you the … to access the millions of sites and data all around the world.
   a) letters b) liberty c) laconism
2. Choosing a good ... is really very important for your surfing time.
   a) push b) browser c) code
3. According to many ... Mozilla Firefox is the fastest browser in the world.
   a) critics b) controversions c) contradictions
4. Opera Mini and Opera Mobile are the browsers used in ... .
   a) IPads b) smartphones c) Hi-Fi
5. Google Chrome offers you all the ... which all the other web browsers have to offer.
   a) gadgets b) instruments c) features

6. Mozilla Firefox was officially ... in February 2004.
   a) announced b) closed c) resumed
7. Microsoft occasionally releases ... for the previous versions of IE, which have some enhanced capabilities.
   a) messages b) updates c) surveys
8. Mozilla Firefox supports tabbed browsing that allows the user ... multiple sites in a single window.
   a) to shut up b) to postpone c) to open

4.19. Read the following sentences and say whether they are true (T) or false (F).

1. Now there are so many types of web browsers in the world, that it becomes hard to choose the best one.
2. Google Chrome has got the name "Light Weight Browser" because of its ability to upload web-pages at a low speed.
3. Opera browser is not used in smartphones as it is often attacked by viruses.
4. Firefox allows the user to open multiple sites in a single window.
5. Having a useful browser can save loads of time and headaches by giving you the correct websites.
6. Opera browser is not compatible with such operating systems as Solaris, Linux, Microsoft Windows.
7. Today Internet Explorer can be used even in the older versions by installing toolbars.
8. According to statistics the usage share of the Internet Explorer at the beginning of this millennium was around 35%.

4.20. Choose the best answer to the following questions.

1. For what browser does Microsoft occasionally release updates?
   a) Firefox b) Internet Explorer c) Google Chrome
2. By what was Opera browser developed?
   a) Opera Software b) Linux c) Opera Mobile
3. When were beta and commercial versions of Google Chrome released?
   a) in September 2004b) in September 2006c) in September 2008
4. What kind of system does Google Chrome use for opening web pages?
   a) a window system b) a tab system c) a beta system
5. What does Mozilla Firefox allow everyone to access as an open source software?
   a) the speed b) the keyboard c) the code
6. How did the release of Firefox effect the sale of Internet Explorer?
   a) it has gone up b) it has gone down c) it has stopped

7. For what is choosing a good browser really very important?
   a) for your downloading stuff b) for your enjoying the company
   c) for your surfing time

8. With what does technology make sure to provide your web browser?
   a) the latest updates b) the latest fashions c) the latest handwriting styles

4.21. Share opinions with a partner on your choice of using this or that browser, its advantages and disadvantages.

The Internet of Things https://www.youtube.com/watch?v=LVlT4sX6uVs

4.22. Before watching the video, match the words in the left column with their definitions in the right one.

1. decade	a) to check, record or test something regularly for a period of time
2. to detect	b) advanced and complicated
3. tablet	c) the conditions in which you live, work, etc.
4. to estimate	d) a period of 10 years
5. environment	e) to say that something will happen in the future
6. to extend	f) to cause to cover a wide area; to make larger
7. to monitor	g) to discover or identify the presence or existence of something
8. app	h) to calculate the size, cost, etc. of something approximately, before you have all the facts and figures
9. sophisticated	i) a program that is designed to do a particular job
10. to predict	j) a very small computer that you can carry with you and that has a screen that you touch with a special pen (stylus) so that you do not have to use a mouse or a keyboard

4.23. Watch the episode about "The Internet of Things" and answer the questions based on the text.

1. How many objects did you have that were connected to the Internet a decade ago?
2. What are the varieties of objects connected to the Internet today?
3. How many objects will a person have connected to the Internet in the near future?
4. In what world are we going to live as far as sensors are concerned?
5. How many people are supposed to live on the planet by 2020?

6. How many sensors will the world be blanketed with by 2020?
7. From what do sensors take information and what do they do with it?
8. How will the telephone of the future detect your stress?

4.24. Choose the correct answer and complete the following sentences.

1. Your next refrigerator may know more about … than your doctor.
   a) medicine b) products c) diet
2. It is estimated that by 2020 there will be … billion objects connected to the Internet.
   a) 50 b) 5 c) 1
3. It is a world that's constantly changing all around us due to these … .
   a) movements b) sensors c) degrees
4. Biosensors may detect the stress via … and heart rate.
   a) calendar b) keyboard c) blood pressure
5. So it turns off the rockabilly surf guitar you usually listen to, and switches to a more … music.
   a) soothing b) shrieking c) horrible
6. If you walk to the sensor refrigerator, it can tell what is the perfect meal based on your … .
   a) weight b) muscles c) mood
7. The latest version of Internet … , IPV6, creates more potential address than there are atoms on the surface of the Earth.
   a) size b) protocol c) shape
8. In the near future we are going to live in a world completely filled with … reacting to us, changing every moment depended on our needs.
   a) data b) desire c) mood
9. The altering reality is all … by the Internet of Things.
   a) proved b) regulated c) submitted
10. It is estimated by the … that there will be 7.6 billion people alive by 2020.
    a) Travel Agency b) Cosmonaut Centre c) US Census Bureau

4.25. Watch the video again and complete the following sentences.

1. How many objects do you have that are … to the Internet? About… ago you probably would have said 1 or maybe 2 if you were an early … of smartphone technology.
2. So that means that for every … there will be 6.6 objects connected to the Internet.
3. These … are taking information from real … … that are in the world, and uploading it to the Internet.

4. Now immediately this room … you and taps into a cloud based profile of preferences like … …, music, lighting and … .
5. From … sensors outside and maybe even worn within your clothing itself, it knows if it was snowing … , so the climate control begins … the heat in anticipation as your walk through the door.
6. So when you walk to the … , it tells you not only what's in there, it tells you what you can make with the … you already have.

GRAMMAR

Participle I and Participle II

Table 4.1

Participle I (V_{ing}) and Participle II ($V_{ed/3}$)

Model 1a: V_{ing}	The engineer **making** that experiment took a lot of measurements.
Model 1b: $V_{ed/3}$	**(While / When) Making** the experiment you should write down the results. The experiment **made** was very important.
Model 2: having $V_{ed/3}$	**Having made** his experiments he compared the results.
Model 3: being $V_{ed/3}$	**Being made** a lot of times the experiment showed good results. What do you think of the experiment **being made** now?
Model 4: having been $V_{ed/3}$	**Having been made** the experiment the researchers reported the results.

4.27. Choose the correct form of the participle.

1. **Receiving / Received** an e-mail message he always takes it to the manager.
2. The Internet **providing / provided** a new method of doing business must be capable of providing the reliability for the user.

3. Information **sent / sending** over the Internet takes the shortest and safest path available from one computer to another.
4. **Using / Used** the mouse you can do a number of things by clicking on different icons.
5. All components **needed / needing** for a computer are included on a single chip.
6. Commercial users can communicate over the Internet with the rest of the world **doing / done** it very cheaply.
7. The peripherals are the physical units **attaching / attached** to the computer.
8. In many **developed / developing** countries the Internet may provide businessmen with a reliable alternative to the expensive and unreliable telecommunication systems of these countries.
9. The computer device **testing** / **tested** showed good properties.
10. A smart card is a plastic card **containing / contained** a processor and memory chip.

4.28. Complete the following sentences with the correct variant.

1. The man ... at the board is our Computer Science teacher.
   a. is standing b. standing c. stood
2. They spent all day ... the PC to the local network.
   a. being connected b. having been connected c. connecting
3. He sat all night ... e-mails to his colleagues.
   a. writing b. written c. having written
4. I looked through the article ... into Russian.
   a. translating b. translated c. having translated
5. ... an addition the computer displayed the results.
   a. Having been performed b. Performed c. Having performed
6. ... in laboratory's research team he was very happy.
   a. Being invited b. Inviting c. Having invited
7. The devices ... in our work are up-to-date.
   a. using b. being used c. having used
8. ... in action the device was greatly modified.
   a. Having been seen b. Having seen c. Being seen
9. ... this text I found a lot of interesting expressions.
   a. Read b. Having read c. Having been read

10. The motherboard ... will become the most reliable motherboard ever.
a. having been tested b. being tested c. testing

11. ... the new device was recommended for mass production.
a. Having tested b. Having been tested c. Being tested

12. Be careful ... unknown files.
a. being downaloaded b. downloading c. downloaded

4.29. Match the following Russian parts of the sentences with their equivalents.

1. ***Получив электронное письмо…***

a. **Receiving emails** from his foreign friends he always tells us the news his friends write him.
b. **Having been received the email** was shown to everybody.
c. **Having received the email** from our foreign partners we showed it to our manager.

2. ***Когда я вхожу в Интернет…***

a. **Having entered the Internet** I found a lot of interesting information.
b. **Entering the Internet** I always find a lot of interesting information.
c. I **am entering the Internet** now.

3. ***Так как студента спрашивали…***

a. **The student was being asked** at 5 o'clock and so he couldn't go out.
b. **Being asked the student** couldn't go out.
c. **Having been asked the student** went home.

4. ***После того как книга была написана…***

a. **Having been written the article** was published in one of the scientific journals.
b. **The book was written** and published in one of the scientific journals.
c. **Having written the book** we published it in one of the scientific journals.

5. Что ты думаешь о ***методе, который используется*** *сейчас?*

a. What do you think of **the method used** now?
b. What do you think of **the method having been used** now?
c. What do you think of the **method being used** now?

4.30. Complete the following sentences with the correct form of the participle.

Model: The apparatus **being installed** in the satellite will give various information. (*который устанавливают*; ***to install*** - *устанавливать*)

1. The teacher wrote some formulas on the board ... the laws of motion. *(объясняя; **to explain** - объяснять)*
2. ... to the conference he may report on the results of his work. *(так как его послали, будучи посланным; **to send** – посылать)*
3. The students ... the laboratory work are from various faculties (*выполняющие, которые выполняют; **to do** – выполнять*)
4. When ... the elements the scientists noticed the outstanding stability of some electronic structures. *(сравнивая, при сравнении; **to compare** - сравнивать)*
5. ... he passes his exams successfully. (*так как он трудолюбивый, будучи трудолюбивым; **to be hardworking** – быть трудолюбивым*).
6. The question ... is a serious one (*который обсуждается, обсуждаемый; **to discuss** – обсуждать*)
7. The apparatus ... on the table in the corner of the laboratory is quite new. *(стоящий, который стоит; **to stand** - стоять)*
8. ... the new program he started to use it (*установив, **to install** – устанавливать*)
9. The lectures ... were sold very quickly. (*после того как опубликовали; **to publish** – опубликовывать*)
10. ... with such problem I could help them. (*так как был знаком, будучи знакомым; **to be acquainted** – быть знакомым*)

4.31. Translate the following sentences paying attention to the functions of participles.

1. The device **made** in our laboratory will be used in industry.
2. The computer **tested** showed that it needed no further upgrading.
3. **Having collected** all the necessary data we should analyse them.
4. I spent the rest of the day **solving** a few problems.
5. **Having been used** for a long time the device was out of order.
6. **Being produced** of modern materials devices met all requirements.

7. The data **received** are of no interest.
8. While **describing** this phenomenon he illustrated it with numerous examples.
9. **Having been measured** with inaccurate instruments the data were incorrect.
10. The method **proposed** by the researcher was not acceptable.
11. Radio occupies one of the **leading** places among the greatest achievements of modern engineering.
12. **Having been** carefully **tested** the device was put into operation.
13. He told us about the problems **being solved** in his laboratory.
14. **Having informed** people of the date of the conference we had to send them invitations.
15. The **completed** project was a great success**.**

Table 4.2

Absolute Participle Constructions

Model 1: S + V_{ing}	The **student knowing** English well, the examination did not last long. He continued speaking, **his colleagues listening** to him attentively.
Model 2: S + having $V_{ed/3}$	**The crisis having passed,** they could think about the future.
Model 3: S + being $V_{ed/3}$	The **experiments being finished**, the research group turned to a new problem. They worked hard, **the articles being translated** into English.
Model 4: S + having been $V_{ed/3}$	**The translation having been done**, I gave it to the teacher.
Model 5 = Model 4: **S +** ~~having been~~ **$V_{ed/3}$**	**Email** ~~(having been)~~ **broken** into by computer hackers, a lot of important personal information was lost.

4.32. Choose the English equivalents of the Russian phrases containing the absolute participle II construction.

1. ***поскольку инженеры использовали новые методы проектирования***
   a. **The engineers applying new methods of design**, good results were achieved.
   b. **The engineers** a**pplying new methods of design** had many controversial opinions on them.
   c. **Having applied the new methods the engineers** were dissatisfied finally with the design.

2. ***так как первые компьютеры были не очень надежными***
   a. **Not being very reliable the first computers**, nevertheless, proved to be a great invention of the mankind.
   b. **The first computers being not very reliable** were quickly replaced by a more reliable design.
   c. **The first computers being not very reliable,** scientists went on improving them.

3. ***причем изобрел его русский ученый Попов***
   a. **Having invented the radio, Popov** became famous.
   b. Radio was invented in Russia, **its inventor being the Russian scientist Popov.**
   c. **Popov's inventing the radio** revealed great knowledge of physics laws.

4. ***когда выполнил перевод***
   a. **Doing the translation**, I looked up the new words in the dictionary.
   b. **The translation having been done**, I gave it to the teacher.
   c. **My brother having done translation**, we went home.

5. ***так как цель собрания была достигнута***
   a. **The purpose of the meeting being achieved**, it was over.
   b. **Achieving the purpose of the meeting**, those present at it were very active.
   c. **Having achieved the purpose of the meeting**, the members' interest faded.

6. ***когда проблема была решена***
   a. **Having solved the problem,** we finally gave our consent to take part in the conference.
   b. **This problem having been solved,** we could conduct the necessary experiments.
   c. **Solving the problem,** we had a heated discussion.

7. ***Когда опыты были проведены…***
   a. **The experiments made,** we could discuss the results.
   b. **The experiments being made** result in the discussion.
   c. **The experiments made** were discussed in respect to their results.

8. ***Так как все оборудование убрали…***
   a. **Having removed all the equipment,** the explorers stopped working.
   b. **Removing all the equipment,** the explorers dusted each detail.
   c. **All the equipment removed,** the explorers stopped working.

4.33. Match the sentences containing the absolute participle constructions with their complex sentences equivalents.

1. ***The energy sources of the work decreasing, scientists must find a new one.***
   a. As the sources of working energy decrease, scientists must find a new one.
   b. Scientists are in need to find new sources of energy as the known ones are limited.
   c. The exhaustion of the energy sources makes scientists find new ones.

2. ***This material being a dielectric, no current can flow through it.***
   a. Current cannot run through this dielectric material.
   b. Flowing through this dielectric material is impossible for the current.
   c. No current can flow through this material as it does not conduct electricity.

3. ***A great deal of attention has been devoted to problems generated by the "information explosion", computers being the reliable means of solving them.***
   a. Nowadays there is information boom which can be solved due to the work of computers.
   b. Computers are reliable means of solving the problems generated by the "information explosion" which a great deal of attention has been devoted to.
   c. Computers are trying to solve the problem of too much information falling upon people.

4. ***The workers having applied a new method of constructing, good results were achieved.***
   a. To achieve good results the workers intended to apply new construction methods.
   b. Construction requires new technology application and the workers often resort to it.
   c. After the workers had applied a new method of constructing, good results were achieved.

5. ***The article being written, they sent it to the journal.***
   a. When ready, the article was sent to the journal.
   b. They wrote the article and sent it to the journal.
   c. When the article was written, it was sent by them to the journal.

6. ***The experiment having been finished, the students left the laboratory***.
   a. After the experiment had been finished, the students left the lab.
   b. The students did not leave the laboratory till they finished the experiment.
   c. The students stopped carrying out the experiment as they wanted to leave the laboratory.

7. ***The necessary information delivered, the computer processed it quickly.***
   a. After the computer processed the information, the necessary data were delivered quickly.
   b. After the necessary information was received, the computer processed it quickly.
   c. The necessary information underwent quick processing on the computer

8. ***The program prepared and stored in the computer, the machine was capable of performing the calculations.***

a. Storing the program in the computer the machine was made to perform the calculations.

b. The machine began to perform calculations because the program was stored in it.

c. As soon as the program was prepared and stored in the computer, the machine was capable of performing the calculations.

4.34. Translate the following sentences paying attention to the participle constructions.

1. Electrons moving through a wire, electrical energy is generated.
2. The speed of light being extremely great, we cannot measure it by ordinary methods.
3. With the presentation having been carried out, we started a new investigation.
4. Gates attended Harvard in 1975, a version of the Basic computer programming language being developed during his stay.
5. The equipment showing good characteristics, we could use it for several purposes.
6. Electrical devices find a wide application in every house, a refrigerator being one of them.
7. An electric conductor being moved in magnetic field, an electric current is generated.
8. With the technique having been improved, new methods of work became possible.
9. All the problems having been solved, they stopped the discussion.
10. The programs loaded into the main memory, the computer begins to process them.
11. The classification suggested by the science adviser, he managed to find the necessary solution of the problem.
12. The invitation to the seminar accepted, the young scientist felt pleased.
13. The required data supplied, the computer processed the information quickly.
14. The advantages of the new machine discussed, we decided to make use of it.
15. All the possible errors detected by the programmer, the group started their operation.

Unit 5. INFORMATION SECURITY

Text A	**Information Security**
Text B	**Types of Computer Attacks**
Listening:	**Cybersecurity 101**
Grammar:	**Gerund, Gerund Construction**

Text A

INFORMATION SECURITY

5.1. Read the following words and expressions and try to guess their meaning.

Process, data, methods, system, practical, critical, code, program, symbol, combination, hacker, virus, record, antivirus, potential, scan, online, limiting, address, monitoring, characteristics, protocol, information, certificate, algorithm.

5.2. Read the following words and mind their pronunciation.

privacy	['prɪvəsi]	intercept	[ˌɪntə'sept]
measure	['mɛʒə]	encryption	[ɪŋ'krɪpʃ(ə)n]
malware	['mælweə(r)]	algorithm	['algərɪð(ə)m]
virus	[vʌɪrəs]	asymmetric	[ˌeɪsɪ'metrɪk]
subscription	[səb'skrɪpʃ(ə)n]	employee	[ɛmplɔɪ'iː]
unauthorized	[ʌn'ɔːθərʌɪzd]	liability	[lʌɪə'bɪlɪti]

Memorize the following words and expressions

foolproof	*безопасный*	**firewall**	*межсетевое устройство*
to improve	*улучшать*	**to encrypt data**	*зашифровать данные*
access	*доступ*	**to maintain**	*сохранять, поддерживать*
malware	*вредоносное ПО*	**unauthorized**	*неразрешенный*
spyware	*шпионское ПО*	**proxy server**	*промежуточный сервер*
to steal	*воровать, красть*	**secure sockets layer**	*протокол защищенных сокетов*
to install	*устанавливать*	**to destroy**	*разрушать*

5.3. Read the text.

INFORMATION SECURITY

Information security is the process of protecting the availability, privacy, and integrity of data. While the term often describes measures and methods of increasing computer security, it also refers to the protection of any type of important data, such as personal diaries or the classified plot details of an upcoming book. No security system is foolproof, but taking basic and practical steps to protect data is critical for good information security.

Password Protection

Using passwords is one of the most basic methods of improving information security. This measure reduces the number of people who have easy access to the information, since only those with approved codes can reach it. Unfortunately, passwords are not foolproof, and hacking programs can run through millions of possible codes in just seconds. Passwords can also be breached through carelessness, such as by leaving a public computer logged into an account or using a too simple code, like “password” or “1234”.

To make access as secure as possible, users should create passwords that use a mix of upper and lowercase letters, numbers, and symbols, and avoid easily guessed combinations such as birthdays or family names. People should not write down passwords on papers left near the computer, and should use different passwords for each account. For better security, a computer user may want to consider switching to a new password every few months.

Antivirus and Malware Protection

One way that hackers gain access to secure information is through malware, which includes computer viruses, spyware, worms, and other programs. These pieces of code are installed on computers to steal information, limit usability, record user actions, or destroy data. Using strong antivirus software is one of the best ways of improving information security. Antivirus programs scan the system to check for any known malicious software, and most will warn the user if he or she is on a webpage that contains a potential virus. Most programs will also perform a scan of the entire system on command, identifying and destroying any harmful objects.

Most operating systems include a basic antivirus program that will help protect the computer to some degree. The most secure programs are typically those available for a monthly subscription or one-time fee, and which can be downloaded online or purchased in a store. Antivirus software can also be downloaded for free online, although these programs may offer fewer features and less protection than paid versions.

Firewalls

A firewall helps maintain computer information security by preventing unauthorized access to a network. There are several ways to do this, including by limiting the types of data allowed in and out of the network, re-routing network information through a proxy server to hide the real address of the computer, or by monitoring the characteristics of the data to determine if it's trustworthy. In essence, firewalls filter the information that passes through them, only allowing authorized content in. Specific

websites, protocols (like File Transfer Protocol or FTP), and even words can be blocked from coming in, as can outside access to computers within the firewall.

Codes and Cyphers

Encoding data is one of the oldest ways of securing written information. Governments and military organizations often use encryption systems to ensure that secret messages will be unreadable if they are intercepted by the wrong person. Encryption methods can include simple substitution codes, like switching each letter for a corresponding number, or more complex systems that require complicated algorithms for decryption. As long as the code method is kept secret, encryption can be a good basic method of information security.

On computers systems, there are a number of ways to encrypt data to make it more secure. With a symmetric key system, only the sender and the receiver have the code that allows the data to be read. Public or asymmetric key encryption involves using two keys — one that is publicly available so that anyone can encrypt data with it, and one that is private, so only the person with that key can read the data that has been encoded. Secure socket layers use digital certificates, which confirm that the connected computers are who they say they are, and both symmetric and asymmetric keys to encrypt the information being passed between computers.

Legal Liability

Businesses and industries can also maintain information security by using privacy laws. Workers at a company that handles secure data may be required to sign non-disclosure agreements (NDAs), which forbid them from revealing or discussing any classified topics. If an employee attempts to give or sell secrets to a competitor or other unapproved source, the company can use the NDA as grounds for legal proceedings. The use of liability laws can help companies preserve their trademarks, internal processes, and research with some degree of reliability.

Source: http://www.wisegeek.org/what-is-information-security.htm

5.4. Match these words with their definitions.

1. malware	a) intended to do hard
2. encryption	b) the state of being free from public attention
3. foolproof	c) a part of a computer system or network which is designed to block unauthorized access while permitting outward communication
4. spyware	d) to obstruct (someone or something) so as to prevent them from continuing to a destination
5. firewall	e) software that enables a user to obtain covert information about another's computer activities by transmitting data covertly from their hard drive
6. malicious	f) not having official permission or approval
7. to intercept	g) incapable of going wrong or being misused

8. to reveal	h) the process of converting information or data into a code, especially to prevent unauthorized access
9. privacy	i) to make (previously unknown or secret information) known to others
10. unauthorized	j) software which is specifically designed to disrupt, damage, or gain authorized access to a computer system

5.5. Find the words in the text that correspond to the following Russian ones.

1. уменьшать, снижать
2. небрежность
3. избегать
4. торговая марка
5. целостность
6. перехватывать
7. загрузить, скачать
8. контролировать
9. цифровой
10. осложненный

5.6. Choose the words of the opposite meaning to the ones in the left column and make up sentences with them.

1. harmful	a) freedom
2. to preserve	b) to decode
3. limit	c) helpful
4. to improve	d) to decrease
5. to increase	e) to deteriorate
6. to encrypt	f) irresponsibility
7. liability	g) to sell
8. to purchase	h) to lose

5.7. Complete the following sentences with the words and expressions from the box (use the correct forms).

encryption	**security**	**firewall**	**unauthorized**	**destroy**
	antivirus	**decrypt**	**spyware**	
	encrypt	**monitor**		

1. Criminals who infect computers with … can be jailed for up to 5 years under the bill.
2. He is suspected of breaking Japanese laws prohibiting … computer access.
3. The software will … the message before it is sent.
4. Be sure to enable your computer's … .
5. All the files were deliberately … .
6. The computer can be used to encrypt and … sensitive transmissions.
7. Enter your … code to access the computer.
8. Most … software updates automatically when you connect to the web.
9. We need a better system for … what is going on.
10. I use … to protect sensitive information transmitted online.

5.8. Put the words into the correct order to make sentences.

1. using / is / the most / methods / of / passwords / security / one of / basic / improving / information
2. information / the process / protecting / integrity of / privacy, / security / is / data / of / the availability, / and
3. gain / to secure / that / malware / one way / access / hackers / information / through / is
4. systems / a basic / program / help / will / most / that / include / operating / to some degree / protect / the computer / antivirus
5. helps / computer / security / access / maintain / a firewall / information / to a network / by preventing / unauthorized
6. is / the oldest / ways / data / information / of securing / one of / encoding / written

5.9. Choose the correct word to complete the sentences according to the information in the text.

1. Using … is one of the most basic methods of improving information security.
   a) keyboards b) passwords c) modems
2. For better security, a computer user may want to consider switching to a new password … .
   a) every few months b) every decade c) every fortnight
3. Most operating systems include a basic antivirus program that will help … the computer to some degree.
   a) repair b) switch on c) protect
4. With a symmetric key system, only the sender and the receiver have the … that allows the data to be read.
   a) address b) code c) e-mail
5. Governments and … organizations often use encryption systems to ensure that secret messages will be unreadable if they are intercepted by the wrong person.
   a) military b) space travel c) health insurance
6. The use of liability laws can help companies preserve their … , internal processes, and research with some degree of reliability.
   a) staff b) employers c) trademarks
7. The most secure programs are typically those available for a monthly subscription or one-time fee, and which can be downloaded online or … .
   a) bought on credit b) purchased in a store c) presented by a store
8. One way that … gain access to secure information is through malware, which includes computer viruses, spyware, worms, and other programs.
   a) users b) operators c) hackers

5.10. Read the following sentences and say whether they are true (T) or false (F).

1. Using passwords increases the number of people who have easy access to the information.
2. The most secure programs are typically those available for a daily subscription or a year fee.
3. Governments and military organizations often use encryption systems to ensure that secret messages will be unreadable if they are intercepted by the wrong person.
4. The use of liability laws can't help companies preserve their trademarks.
5. With a symmetric key system, only the sender and the receiver have the code that allows the data to be read.
6. As long as the code method is accessible, encryption can be a good basic method of information security.
7. Public or asymmetric key encryption involves using only one key – one that is publicly available.
8. Information security is the process of protecting the availability, privacy, and integrity of data.

5.11. Match the questions to the answers.

1. Through what kind of carelessness can passwords be breached?	a) They may be required to sign a non-disclosure agreements.
2. Is any security system foolproof?	b) It is through malware, which includes computer viruses, worms and other programs.
3. What else besides measures of increasing computer security does the term "information security" describe?	c) Encryption.
4. What should not people do to protect the availability privacy of their computer?	d) No, it isn't.
5. Which is one of the ways of hackers' gaining access to secure information?	e) They should not write down passwords on papers left near the computer.
6. What can a good basic method of information security be as long as the code method is kept secret?	f) It also describes the protection of personal diaries or the classified plot details of an uncoming book.
7. What may the workers at a company that handles secure data be required to sign?	g) They have the right to use non-disclosure agreements as grounds for legal proceedings.

8. What right can a company have in respect to an employee giving or selling secrets to a competitor?

h) By learning a public computer logged into an account.

5.12. Exchange your experiences with your groupmates in protecting the availability, privacy of your computers.

Text B

TYPES OF COMPUTER ATTACKS

5.13. Read the following words and expressions and try to guess their meaning.

Attack, technology, data, corrupt, transaction, virus, install, hard drive, independent, file, hackers, copy, infect, snooping, cyber, password, configuration, key, combination, identity, server.

5.14. Read the following words and mind their pronunciation.

vulnerable	['vʌln(ə)rəb(ə)l]	launch	[lɔːn(t)ʃ]
technology	[tɛk'nɒlədʒi]	access	['ækses]
precious	['prɛʃəs]	disguise	[dɪs'gaɪz]
entire	[ɪn'tʌɪə]	worm	[wɜːm]
utilize	['juːtɪlʌɪz]	exploit	[ɪk'splɔɪt]
malicious	[mə'lɪʃəs]	compromised	[kɒmprəmaɪzd]
external	[ɪk'stəːn(ə)l]	layer	['leɪə]

Memorize the following words and expressions

vulnerable	*уязвимый, ранимый*	**attachment**	*вложение к письму*
data	*данные*	**eavesdropping**	*подслушивание*
entire	*весь, целый*	**sensitive**	*зд.секретный*
to utilize	*использовать*	**to gain access**	*получить доступ*
malicious	*вредоносный*	**valid**	*действующий*
to install	*устанавливать*	**victim**	*потерпевший, жертва*

to spread	*распространять*	**snooping**	*отслеживание; подслушивание*
external	*внешний*	**to disguise**	*скрывать; маскировать*

5.15. Read the text.

TYPES OF COMPUTER ATTACKS

Our computer systems are vulnerable to different types of attacks. In today's world, it has become an almost everyday situation where we hear about personal computer systems or the networks have been attacked. In this age of technology, there are different types of computer attacks from which one has to protect their precious data, systems and even networks. While some of the attacks may simply corrupt the data on the computer, there are other attacks, where the data from the computer system may be stolen, and others where the entire network may be shut down.

To put it simply, there are two main types of attacks, passive attacks and active attacks. Passive attacks are the ones where the data transaction on the computer is monitored and later utilized for malicious interests, while active attacks are ones where either changes are made to the data or the data is deleted or the network is destroyed completely. Given below are some of the common types of active as well as passive attacks that can affect the computers of today.

Active Types of Computer Attacks

Virus

Most famous computer attacks are viruses, which have been around for the longest time. They install themselves onto the computers and spread to the other files on the system. They often spread through external hard drives, or through certain internet sites or through email attachments. Once the viruses are launched, they become independent of the creator and aim to infect a number of files and other systems.

Root Kit

Hackers gain access into the system with the use of root kit drivers and take full charge of the computer. These are among the most dangerous computer attacks, as the hacker can gain more control over the system, than the owner of the system. In some cases, hackers have been able to also turn on the victim's webcam and watch the activities of the victim, without the victim knowing about it at all.

Trojan

In the list of computer attacks, Trojan horses rank right after the viruses. They often disguise themselves in a piece of software, in screen saver, or in a game, which appears to work normally. However, once they are copied onto the system, they will infect the system with a virus or root kit. In other words, they act as carriers of viruses or root kits, to infect the system.

Worm

Worms can be called the cousins of viruses. The difference between viruses and worms is that worms infect the system without any kind of assistance from the user. The first step that worms take is to scan the computers and exploit vulnerabilities. Then it copies itself onto the system infecting the system, and the process is repeated.

Passive Types of Computer Attacks

Eavesdropping

As the name suggests, hackers will sneakily listen to the conversation happening between two computers on the network. This can happen in a closed system as well as over the internet. The other names with which this is referred to is sniffing or snooping. With eavesdropping, sensitive data can make its way over the network and can be accessible to others.

Password Based Attacks

One of the most common types of cyber attacks are password based attacks. Here the hackers gain access to the computer and the network resources by gaining password control. It is often seen that the attacker changes server and network configuration and in some cases may even delete data. Data can also be passed onto different networks.

Compromised Key Attack

To store sensitive data, a secret code or number may be used. Obtaining the key is no doubt a real huge task for the hacker, it is possible that after intense research the hacker is indeed able to lay his hands on the key. Once the key is in possession of the hacker, it is known as compromised key. The hacker will now have access to the sensitive data and can make changes to the data. However, there are also chances that the hacker will try different permutations and combinations of the key to gain access to other sets of sensitive data as well.

Identity Spoofing

Every computer has an IP address, due to which it is considered as a valid and independent entity on the network. One of the common computer attacks is to assume the identity of another computer. Here IP packets may be sent from valid addresses and gain access to a particular IP. Once access is gained, the data on the system may be deleted, modified or rerouted. Alternately, the hacker can make use of this hacked IP and cause attacks on the other systems within or outside the network.

Application Layer Attack

The aim of the application layer attack is to cause fault in the server's operating system. Once a fault is created in the operating system, the hacker is able to gain access to the server controls. This in turn leads to the hacker modifying the data in various ways. A virus may be introduced into the system or may send numerous requests to the server, which can result in its crash or security controls may be disabled, due to which restoring the server back can become difficult.

Source: http://www.buzzle.com/articles/types-of-computer-attacks.html

5.16. Put the letters in the correct order to make the word that is described.

1. atad - information in the form of a text, numbers, or symbols that can in used in a computer
2. xnlaerte - relating to the outside part of something
3. tiuzeit - to sue something in an effective way
4. tcretop - to keep someone or something safe from something dangerous or bad
5. ttametahcn - a computer file which is sent together with an email message
6. cerkah - someone who illegally gets into someone else's computer system
7. uvrsi - a program that is secretly put onto a computer in order to destroy the information that is stored on it
8. dletee - to remove something, especially from a computer's memory
9. ilsantl - to put software onto a computer
10. sorpawsd - a secret word that allows you to do something, such as use your computer

5.17. Match the words in columns A and B to make phrases (according to the text) and translate them.

1. data	a) hard drive
2. to gain	b) the system
3. Trojan	c) address
4. to infect	d) attachment
5. to delete	e) access
6. a secret	f) transaction
7. valid	g) data
8. external	h) horse
9. email	i) key
10. compromised	j) code

5.18. Find the words in the text with a similar meaning.

1. to exploit -	6. snooping -
2. error -	7. to distribute -
3. riskful -	8. cyberpunk -
4. to poison -	9. actual -
5. to set up -	10. unprotected -

5.19. Match the words from the text with their antonyms.

1. accessible	a) purify
2. passive	b) harmless

3. attack	c) active
4. malicious	d) defense
5. vulnerable	e) incomplete
6. external	f) limited
7. infect	g) protected

5.20. Complete the following sentences with the words and expressions from the box (use the correct forms).

valid	**delete**	**victim**	**destroy**	**utilize**	**a hacker**
virus	**infect**	**get access**	**attachment**		

1. We must consider how best to … what resources we have.
2. … had managed to get into the system.
3. I'll send the spreadsheet as an … .
4. He was the … of an administrative error.
5. The … will disable your computer.
6. He had represented himself as an employee in order to … … to the files.
7. Position the cursor before the letter you want to … .
8. All the computers in the office … … by the same virus.
9. You must present … identification.
10. All the files were deliberately … .

5.21. Find the most suitable endings of the following sentences according to the information in the text.

1. Hackers gain access into the system with the use of root kit drivers …	a) is to cause fault in the server's operating system.
2. The first step that worms take …	b) which have been around for the longest time.
3. Viruses install themselves onto the computers …	c) is that worms infect the system without knowing any kind of assistance from the user.
4. To store sensitive data, …	d) and take full charge of the computer.
5. The aim of the application layer attack…	e) it is known as compromised key.
6. With eavesdropping, …	f) due to which it is considered as a valid and independent entity on the network.
7. Once the key is in possession of the hacker, …	g) is to scan the computers and exploit vulnerabilities.
8. Every computer has an IP address, …	h) and spread to the other files on the system.

9. Most famous attacks are viruses, …	i) sensitive data can make its way over the network and can be accessible to others.
10. The difference between viruses and worms …	j) a secret code or number may be used.

5.22. Read the text again and answer the questions.

1. How can the hacker make use of the hacked identity snooping?
2. What is the aim of the application layer attack?
3. What is the rank of Trojan horses in the list of computer attacks?
4. In what can the introduction of application layer attack into the netsystem result?
5. What is the difference between viruses and worms as computer attacks?
6. What is the first step that worms take in infecting the netsystem?
7. Why are computer viruses harmful?
8. What do the names "sniffing and snooping" mean?
9. What "instrument" helps the hacker have access to the sensitive data and change them?
10. What is the difference between active and passive types of computer attacks?

5.23. Read the following sentences and say whether they are true (T) or false (F).

1. Root kit driver hackers can gain more control over the system than the owner of the system.
2. Worms can be called the cousins of the viruses.
3. Hackers that gain access into the system with the use of root kit drivers can never watch the activities of the owner of the system without the victim knowing about it all.
4. Our computer systems are hardly vulnerable to different types of attacks.
5. Trojan horse attacks disguise themselves in a piece of software, in screen saver, or in a game which appears to work normally.
6. Passive attacks are the ones where the network is destroyed completely.
7. Eavesdropping can happen in a closed system as well as over the internet.
8. Viruses often spread through internal hard drives.
9. In case the network is ruined by password based attacks the server and network configuration are not changed.
10. According to the information of the text, there are 3 main types of attacks.

5.24. Discuss the ways of combating active and passive types of computer attacks. Give helpful tips of precautions against them.

Cybersecurity 101 https://www.youtube.com/watch?v=sdpxddDzXfE

5.25. You are going to watch a video about "Cybersecurity 101". Before watching it, give definitions to the following terms.

1. to explode
2. ease
3. skyscraper
4. challenge
5. to exchange
6. surveillance
7. to submit
8. defence

5.26. Match the words from the video with their synonyms.

1. hazard	a) to hinder
2. huge	b) imperfection
3. to emerge	c) exposure
4. snaky	d) enormous
5. vulnerability	e) target
6. goal	f) danger
7. back and forth	g) complex
8. to thwart	h) backward and forward
9. flaw	i) to come out
10. sophisticated	j) devious

5.27. Watch the video again and make the sentences complete.

1. And as soon as 2 computers could send information … , we had a network.
2. The network gradually grew, until personal computers … , and then it exploded.
3. But the ease of all of those devices talking to each other came at a price: … .
4. … such as these will never completely go away, because they're built into the Internet's … .
5. Between 2004 and 2013, … of personal information were stolen or leaked through … of major organizations.
6. Users would not be allowed … anything onto their computers.
7. In … , you'll play as one of these people, protecting a company that is the target of increasingly … .
8. You must continuously strengthen your defences … .

5.28. Match the parts of the phrases from the video and translate them.

1. massive	a) a tune
2. to crack	b) Internet
3. data	c) a password
4. to log	d) billions of dollars
5. to whistle	e) scams

6. to spot	f) supercomputers
7. snaky	g) breach
8. sophisticated	h) cyber attacks
9. secure	i) foundation
10. to steal	j) onto a website

5.29. Answer the questions to the video.

1. With what does the speaker compare the house not safe to live in?
2. What recommendation is given to the owner of the Internet?
3. What did the first computers look like and who could own them?
4. When did personal computers emerge?
5. Why is the appearance of personal computers compared with an explosion?
6. What problems did the owners of computers have in respect to their security?
7. What do hackactivists use Internet vulnerabilities for?
8. How many records of personal information were stolen within the period from 2004 to 2013?
9. What might a perfectly secure Internet look like?
10. What can be done to decrease cyber attacks?

GRAMMAR

Gerund

Table 5.1

Gerund forms

Model 1: He likes **V_{ing}**	He likes **inviting** friends.
Model 2: He likes **being $V_{ed/3}$**	He likes **being invited**.
Model 3: He is proud of **having $V_{ed/3}$**	He is proud of **having invited** his friends.
Model 4: He is proud of **having been $V_{ed/3}$**	He is proud of **having been invited**.

5.30. Translate the following sentences paying attention to the gerund forms.

1. ***<u>In</u>*** **making** this experiment they came across some very interesting phenomena.
2. The results of the experiment must be checked and rechecked before **being published**.
3. I can't go to this place without **having prepared** my calculations first.
4. Why do you **avoid speaking** to me?
5. She tried to **avoid being spoken *<u>to</u>***.
6. He had a strange habit of **interfering** in other people's business.
7. I was angry at **being interrupted** every moment.
8. By **working** hard she passed her maths exam.

Table 5.2

Gerund and Participle I

Function	Gerund	Participle I
Subject	**Driving** a car is a profession.	–
Part of predicate	His hobby is **driving**.	He is **driving** to Moscow.
Object	He writes articles *about* **driving**.	–
Attribute	His plan *of* **driving** to Moscow is not good.	The man **driving** a car is our chief engineer.
Adverbial modifier	*Before* **driving** a car one must learn to do it properly.	**Driving** a car you should be careful.

5.31. Translate the following pairs of sentences. Point out what parts of speech the words in bold are: gerund or participle I.

1. **Overcoming** these difficulties is not so easy as it may seem.
   Overcoming these difficulties the designers can increase the fuel efficiency.
2. **Setting** a problem the scientist makes the first step to its solution.
   Setting a problem is the first step to its solution.
3. **Covering** the distance between Tokyo and Moscow in less than two hours this superliner develops a speed five times above the speed of sound.
   Covering the distance between Tokyo and Moscow on board a superliner requires about two hours.
4. **Putting** the discovery into practice the engineers will solve a complicated technological task.

Putting the discovery into practice sometimes requires more effort than making it.

5. He persisted in **trying** to solve that difficult problem.
   Trying to solve that difficult problem he came to an interesting conclusion.
6. **Using** the new method has brought very good results.
   Thousands of scientists **using** the most modern equipment are studying the atmosphere.
7. A fax machine is used for **sending** and receiving copies of original documents via a phone line.
   Don't forget to write down your address when **sending** a letter.
8. Joystick is an input device especially helpful in **playing** computer games.
   They are **playing** computer games now.

5.32. Translate the sentences paying attention to the functions of the gerund and participle I.

1. **Describing** the experiment he gives every detail of the process.
   a) Описывая b) Описываемый c) Описав

2. Physical parts **making** up a computer system are hardware.
   a) составляя b) составив c) составляющие

3**. Describing** the phenomenon is the aim of her research.
   a) Описание b) Описывая c) При описании

4. **Discussing** his research with his colleagues he saw some of its weak points.
   a) Обсуждая b) Обсудив c) Обсуждаемый

5. Perhaps the most important component of a standard computer system is the central **processing** unit.
   a) обработав b) обрабатывая c) обрабатывающее

6. **Making** a list of all computer devices took me five minutes.
   a) Составлять b) Составление c) Составляя

7. My work involves **testing** the final product.
   a) тестирование b) тестирующий c) тестирую

8. Did you have any difficulties in **plugging** microprocessor into the motherboard?
   a) подключаю b) подключая c) подключении

9.We have no experience in **using** Linux OS.
   a) пользуясь b) использовании c) пользующийся

10. **By doing nothing** we won't reach the solution.
   a) Не делая ничего b) Сделав мало c) Никем не сделанный

Table 5.3

Gerund Construction

Model 1: … **possessive (pro)noun + V_{ing}**	I know of **his (or: John's) translating** the article.
Model 2: … **possessive (pro)noun + having + V_3**	I know of **his (or: John's) having translated** the article.
Model 3: … **possessive (pro)noun + being V_3**	I know of **the article being translated**.
Model 4: … **possessive (pro)noun + having been + V_3**	I know of **the article having been translated**.
Kurchatov's having devoted all his life to nuclear physics is well known.	

5.33. Translate the following sentences paying attention to the gerund constructions.

1. We know of **his working** at the problem of protection from radioactivity.
2. We know of **Yoffe's having contributed** much to the research of transistors.
3. I know of **their being shown** the new device.
4. I know of **their having been shown** the new device.
5. We were told about **their having studied** a number of problems connected with the development of computing machinery.
6. We all know of **their designing** a new type of computer.
7. We heard of **his making** a new programme.
8. We know of **Kondakov's having made** the first synthetic rubber in the world.
9. I have heard of **their experiment being** successfully **completed** soon.
10. He mentioned **his having shown** these slides at the conference.
11. We didn't know about **his being sent** to the power station.
12. We know of **different experiments being made** in this laboratory.
13. I remember **my having told** her about the experiment.
14. Everybody knows about **your having worked** at the nuclear power plant.

5.34. Translate the following sentences with the gerund construction at the beginning of the sentences.

1. **Alexander Bell's being** a teacher of deaf people influenced his interest in sound and its transmission.
2. **Newton's having made** a mistake in his calculations has no influence on his theory.
3. **The student's being prepared** well pleased the teacher.
4. **Our being invited** to take part in such a conference is very important.
5. **His work being criticized** makes him revise his method.
6. **This scientist's taking part** in the design of the new data processing system was of great help for us.
7. **Your having been sent** to London was known to everybody.
8. **His having asked** such a question shows that he did not prepare the text.

Unit 6. COMPUTER AIDED DESIGN – CAD

Text A **Computer Aided Design – CAD**
Text B **Advantages and Disadvantages of CAD**
Listening: **How will Computer-Aided-Design evolve over the next 10 years?**
Grammar: **Infinitive, Infinitive and Gerund functions, Infinitive Constructions (Complex Object, Complex Subject, Infinitive Construction with *for*)**

Text A

COMPUTER AIDED DESIGN – CAD

6.1. Read the following words and expressions and try to guess their meaning.

Technology, system, representation, product, design, information, graphical, analysis, prototype, process, problem, modelling, modification, project, complex, sector.

6.2. Read the following words and mind their pronunciation.

accurately	['ækjərətlɪ]	frequency	[friːkw(ə)nsi]
modifiable	['mɔdɪfaɪəbl]	technique	[tɛk'niːk]
finite	['faɪnaɪt]	surface	['səːfɪs]
transfer	[træns'fɜː]	unambigious	[ˌʌnæm'bɪgjuəs]
automotive	[ˌɔːtə'məutɪv]	majority	[mə'dʒɒrɪti]
consistency	[kən'sɪst(ə)nsi]	parametric	[parə'mɛtrɪk]

Memorize the following words and expressions

computer-aided design	*автоматизированное проектирование*	**to perform**	*выполнять*
hardware	*аппаратное обеспечение*	**to record**	*записывать*
software	*программное обеспечение*	**fluid flow**	*поток жидкости*
peripherals	*внешние устройства*	**stand-alone**	*автономный*
application	*применение*	**forerunner**	*предшественник*

core	*ядро; сердцевина*	**vendor**	*торговец; поставщик*
database	*база данных*	**implementation**	*выполнение; осуществление*
to aid	*помогать*	**to lack**	*не хватать; нуждаться в чем-л.*
product designer	*проектировщик изделия*	**merge**	*объединение*

6.3. Read the text.

COMPUTER AIDED DESIGN – CAD

Computer Aided Design-CAD is defined as the use of information technology (IT) in the Design process. A CAD system consists of IT hardware (H/W), specialized software (S/W) (depending on the particular area of application) and peripherals, which in certain applications are quite specialized. The core of a CAD system is the S/W, which makes use of graphics for product representation; databases for storing the product model and it drives the peripherals for product presentation. Its use does not change the nature of the design process but as the name states it aids the product designer. The designer is the main actor in the process, in all phases from problem identification to the implementation phase. The role of the CAD is in aiding him/her by providing:

- Accurately generated and easily modifiable graphical representation of the product.

The user can nearly view the actual product on screen, make any modifications to it, and present his/her ideas on screen without any prototype, especially during the early stages of the design process.

- Perform complex design analysis in short time. Implementing Finite Elements Analysis methods the user can perform:
- Static, Dynamic and Natural Frequency analysis, Heat transfer analysis, Plastic analysis, Fluid flow analysis, Motion analysis, Tolerance analysis, Design optimization
- Record and recall information with consistency and speed. In particular the use of Product Data Management (PDM) systems can store the whole design and processing history of a certain product, for future reuse and upgrade.

The technique initiated in the MIT from Ian Sutherland, when the first system the Sketchpad was created within the SAGE (Semi-Automatic Ground Environment) research project. The automotive and aerospace industries were the first users and the forerunners of development of CAD technology.

The first systems were very expensive, the computer graphics technology was not so advanced at that time and using the system required specialized H/W and S/W which was provided mainly by the CAD vendors. The first CAD systems were mainframe computer supported systems, while today the technology is for networked but stand alone operating workstations (UNIX or WINDOWS based systems). AUTODESK was the first vendor to offer a PC based CAD system the AUTOCAD (beginning of 1980). Today WINDOWS is the main operating system for CAD systems.

The first applications were for 2D-Drafting and the systems were also capable of performing only 2D modeling. Even today 2D-drafting is still the main area of application (in terms of number of workplaces). Later, (mid-1980), following the progress in 3D modeling technology and the growth in the IT H/W, 3D modeling systems are becoming very popular. Aerospace and automotive industries were using surface modeling systems for exact representation of the body of the product. At the same time solid modeling was recognized as the only system, which could provide an unambiguous representation of the product, but it was lacking adequate support for complex part representations. Today we are experiencing a merge of solid and surface modeling technology. Most solid modeling systems are capable of modeling most of industrial products. Systems sold today (especially for mechanical applications, which are the majority of systems sold world-wide) are characterized as NURBS (Non Uniform Rational B-Sline) based systems, employing solid modeling technology, and they are parametric and feature based systems.

The use of CAD systems has also been expanded to all industrial sectors, such as Electronics, Textiles, Packaging, Clothing, Leather and Shoe, etc. Today, numerous CAD systems are offered by several vendors, in various countries.

Source:
https://docs.google.com/viewer?embedded=true&url=http://www.adi.pt/docs/innoregio_cad-en.pdf

Notes to the text

MIT (Massachusetts Institute of Technology)	*Массачусетский технологический институт*
AUTOCAD	*система проектирования AutoCAD*
SAGE (Semi-Automatic Ground Environment)	*полуавтоматические наземные средства*

6.4. Check yourself if you know what these abbreviations stand for by choosing their correct meaning.

1. CAD
   a) Central Aided Design
   b) Cycling Aided Design
   c) Computer Aided Design
2. IT
   a) Information Testing
   b) Information Technology
   c) Information Tracking
3. S/W
   a) Software
   b) Solar Waves
   c) Soft Waves
4. PDM
   a) Product Design Management
   b) Product Disk Management
   c) Product Data Management

6.5. Find the words in the text with a similar meaning.

1. to help
2. seller
3. show
4. exploration
5. high-priced
6. separate, independent
7. different
8. to see
9. action
10. use

6.6. Complete the sentences about Computer Aided Design. Use English equivalents of the Russian words and phrases in brackets.

1. The user can nearly view *(конкретный продукт)* on screen.
2. Computer Aided Design – CAD is defined as the use of *(информационной технологии)* in the Design process.
3. Most solid modelling systems *(способны)* of modelling most of industrial products.
4. Today, *(многочисленные)* CAD systems are offered by several vendors.
5. *(Авиационно-космические и автомобильные)* industries were using surface modelling systems for exact representation of the body of the product.
6. *(Проектировщик)* is the main actor in the design process.
7. The role of the CAD is *(обеспечить)* accurately generated and easily modifiable graphical representation of the product.

8. The CAD helps the user *(сделать конструкторский анализ)* in short time.

9. The first systems were very *(дорогие).*

10. The first design system, the Sketchpad, *(была создана)* within the Semi-Automatic Ground Environment research project.

6.7. Match the Russian words with their English definitions.

1. база данных	a) to be short of something
2. аппаратное обеспечение	b) a predecessor
3. предшественник	c) an auxiliary device, such as a printer, modem, or storage system, that works in conjunction with a computer
4. ядро	d) the act of representing something (usually on a smaller scale)
5. прогрессивный	e) a collection of organized information in a regular structure, usually, but not necessarily, in a machine-readable format accessible by a computer
6. ЭВМ	f) the central or innermost part
7. не хватать чего-л.	g) to execute; to do something
8. моделирование	h) a large digital computer serving 100-400 users and occupying a special air-conditioned room
9. внешнее устройство	i) highly developed or complex; progressive
10. выполнять	j) a computer and the associated physical equipment directly involved in the performance of data-processing or communication functions

6.8. Complete the following sentences with the words and expressions from the box.

forerunner	**to aid**	**implementation**	**database**	**hardware**
vendor	**computer aided design**		**peripherals**	

1. She bought some new … for her system.
2. You'll need a password to access the … .
3. Disk drives and printers are important … .
4. Most companies have moved over to … systems.

5. He said that we needed much better planning and … of all the stages in product presentation.
6. Babbage's engine was the …of the modern computer.
7. The Congress passed debt relief measures … poor countries.
8. The sale contract contains several representations by the … .

6.9. Read the following sentences and say whether they are true (T) or false (F).

1. The core of a CAD system changes the nature of the design process to mislead the product designer.
2. Due to the CAD system the user can nearly view the actual product on the screen.
3. It takes much time for the CAD system to perform complex design analysis.
4. The use of Product Data Management (PDM) systems can store the whole design and processing history of a certain product.
5. The first users of CAD technology were agricultural and house-building industries.
6. Information Technology in the Design process was initiated in the Massachusetts Institute of Technology from John Sutherland.
7. Solid modelling was recognised as the only system, which could provide an unambiguous representation of the product.
8. 3D modelling systems became popular in the mid - 1980.

6.10. Read the text again and answer the questions.

1. What activity are vendors engaged in?
2. What is the core of a CAD system and what is its role?
3. What does the process of product representation include in itself?
4. Who is the main actor in the process of product representation?
5. What are the starting and final phases of this process?
6. Who is the initiator of the technique of the Design process?
7. What were the first users and the forerunners of development of CAD technology?
8. Why were the first CAD systems very expensive?
9. Which is the main operating system for CAD systems today?
10. What are the characteristics of solid and surface modeling technologies?

6.11. Act out the following situation.

Imagine your friend is going to deliver a talk on Computer Aided Design – CAD at the student scientific conference. What major points will you recommend him to speak on and why?

Text B

ADVANTAGES AND DISADVANTAGES OF CAD

6.12. Read the following words and expressions and try to guess their meaning.

Technology, design, identify, analysis, programs, introduction, process, intelligent, individuals, problem, function, structure, information, regularly, modelling, contract, client, professional, materials, automatically, company, architect, documentation, complex, ideas, technical.

6.13. Read the following words and mind their pronunciation.

technology	[tɛkˈnɒlədʒi]	envision	[ɛnˈvɪʒ(ə)n]
identify	[ʌɪˈdɛntɪfʌɪ]	accelerate	[əkˈsɛləreɪt]
exciting	[ɪkˈsʌɪtɪŋ]	supplier	[səˈplaɪər]
require	[rɪˈkwʌɪə]	characterise	[ˈkarəktərʌɪz]
individual	[ɪndɪˈvɪdʒʊ(ə)l]	subcontractor	[sʌbkənˈtræktə]

Memorize the following words and expressions

to update	*обновлять*	**to envision**	*представлять себе*
to contribute	*способствовать*	**hand-drawn**	*воспроизведенный от руки*
tool	*инструмент, оборудование*	**to accelerate**	*ускорять*
to require	*требовать*	**supplier**	*поставщик*
domain	*сфера; область*	**subcontractor**	*субподрядчик*
mapping	*составление карт*	**to reduce**	*уменьшать; снижать*
consumer	*потребитель*	**to improve**	*улучшать*

6.14. Read the text.

ADVANTAGES AND DISADVANTAGES OF CAD

In the work place, technology has significantly changed the way we go about in our every day jobs, in design the introduction of computers and computer software has identified new and exciting ways to go about in the design process. Computers have contributed to design for quite a while by providing analysis tools, data-bases and computer-aided drafting tools.

Design is an intelligent human process activity which requires many skills and lots of knowledge. Design problems can be solved by individuals or by teams. They may take minutes or years. Design occurs in a wide variety of domains, ranging from the design of a Nuclear Power Plant to that of a simple glass bottle. The general design process is often characterized as mapping needs, functions and structures, this process is carried out by using many different types of analysis and different sources of information.

The value of a computer-aided design (CAD) programs depends entirely on what kind of jobs you do, how much design work they regularly involve and the expectations of your client base.

Many consumers can't envision the result of a 3D modelling project, and therefore have a hard time signing off on a contract. Programs that create realistic two dimensional or three-dimensional images of what the client or designer proposes down to the light at different times of the day can help make the sale. Other consumers might not see the charm of a hand-drawn design and consider CAD drawings more professional. CAD programs can definitely accelerate the design process, especially if you do a lot of design work or have clients who change their mind frequently during the design phase. With CAD programs you can change one element of the design, perhaps lengthening one wall of a room, and the proportions of the other walls, the materials list and other affected elements update automatically. Even if your company doesn't create the design, the ability to share files electronically with suppliers, subcontractors and architects can improve productivity and smooth production.

Advantages in using CAD:

- Reduces conceptional time for new designs
- Products can be created more quickly.
- Costly mistakes in design or production can be avoided.
- Reduced manufacturing time.
- Documentation can be printed in various forms for multiple users.
- Ease of document reproduction and cloning
- Visualization of complex technical elements
- The quality of designs.
- Clarity of documentation.
- Easier to apply new ideas.

Disadvantages in using CAD:

- Training.
- Expensive start up costs (hardware, software, and training).
- Hard to get the conceptional form.

Source: http://www.paper2dwg.com/articles/advantage-disadvantage-cad.htm

6.15. Match the words with the same meaning.

1. domain	a) user
2. to accelerate	b) to decrease
3. supplier	c) field
4. to reduce	d) to advance
5. to envision	e) to speed up
6. to improve	f) to imagine
7. consumer	g) provider

6.16. Replace the underlined words with the words from Task 6.15.

1. Peter is an expert in his field.
2. The new system will speed up the registration process.
3. They remain the main providers of sport facilities.
4. Can you imagine him to be a president?
5. The price has decreased by 15%.
6. Many users are still not comfortable making purchases on the Internet.
7. I will work hard to advance my grades.

6.17. Match the words in columns A and B to make the expressions and translate them.

A	**B**
1. design	a) images
2. analysis	b) mistakes
3. require	c) tools
4. hand-drawn	d) productivity
5. three-dimensional	e) process
6. improve	f) many skills
7. costly	g) design

6.18. Complete the following sentences with the words from the box (use the correct form).

consumer	**improve**	**domain**	**supplier**	**production**	**design**
	contribute	**tool**	**accelerate**	**require**	

1. Our ultimate aim is to increase the output of ... .
2. The project will ... a great amount of time and money.
3. This problem is outside the ... of medical science.
4. The machine has a complicated ... .
5. This ... is handy for various jobs.
6. The rate of economic growth has continued to ... .
7. The rights of a ... are protected by law.
8. I've ordered a new computer from the ... .
9. He ... greatly to the development of national music.
10. We suppose that the situation will ... soon.

6.19. Read the text again and answer the questions.

1. What is the role of computers and computer software in the design process?
2. Is design a creative process? Why?
3. What is the range of the design activity?
4. Characterize design as process.
5. What does the value of a computer-aided design (CAD) depend on?
6. What difficulties do many design consumers experience when signing off on a contract?

7. What programs can accelerate the design process if some clients change their mind frequently during the design phase?
8. What can improve design productivity if the company doesn't create the design?

6.20. Read the following sentences and say whether they are true (T) or false (F).

1. Computers have contributed to design by providing analysis tools.
2. The number of consumers who can envision the result of a 3D modeling project is great.
3. The general design process is often characterized as a mapping needs, functions and structures.
4. One of the disadvantages in using CAD is reduced manufacturing time.
5. Using CAD makes it easy to apply new ideas.
6. Some consumers consider CAD drawing more professional than a hand-drawn design.
7. One of the advantages in using CAD is hard getting of the conceptional form.
8. Design is a robot process activity.

6.21. Choose the correct word to complete the sentences according to the information in the text.

1. CAD programs can definitely ... the design process.
   a) activate b) accelerate c) accumulate
2. Design is an intelligent human process activity which requires many skills and ... .
   a) lots of knowledge b) lots of problems c) lots of domains
3. ... can be printed in various forms for multiple users.
   a) Results b) Changes c) Documentation
4. Design problems can be solved by individuals or by ... .
   a) consumers b) teams c) suppliers
5. Costly ... in design or production can be avoided.
   a) mistakes b) tools c) documents
6. Many ... can't envision the result of a 3D modeling project, and therefore have a hard time signing off on a contract.
   a) consumers b) architects c) sketchers
7. Design occurs in a wide variety of domains, ranging from the design of a Nuclear Power Plant to that of a ... .
   a) a simple glass door b) a simple bridge across a river
   c) a simple glass bottle

6.22. Share your opinion with the partner why advantages in using CAD overweigh disadvantages.

How will Computer-Aided-Design evolve over the next 10 years?

https://www.youtube.com/watch?v=DQTvSqNwV5Y

6.23. Before watching the video, match the words in the left column with their definitions in the right one.

1. agile	a) the effect that something will have on something else in the future
2. plumber	b) to make something a part of something else; to have something as a part
3. immersive	c) making you think of or remember a strong image or feeling, in a pleasant way
4. caterpillar	d) able to move quickly and easily
5. to incorporate	e) a vehicle with caterpillar tracks
6. excavator	f) a crash; an occasion when things or people collide
7. to avoid	g) a person whose job is to put in or repair water pipes, baths, ect.
8. collision	h) to prevent something happening or to try not to do something
9. implication	i) a large machine for digging and moving soil
10. evocative	j) generating a three-dimensional image which appears to surround the user

6.24. Watch the video episode about "How will Computer-Aided-Design evolve over the next 10 years?" and answer the questions based on it.

1. In what way can people manipulate objects with the help of a computer-aided-design?
2. Can this manipulation be done privately?
3. What is the speaker's opinion of the changes in a computer-aided-design over the next 10 years?
4. What bodily movements are incorporated in the visual display?
5. What form does the visual display take?
6. How can the design reviews help the working process organization?
7. Which, according to the speaker, more evocative and more emotional: discussing concept designs with real clients or virtual on the computer screen of a desktop?

6.25. Choose the correct answer and complete the following sentences according to the text of the video.

1. The user will be at the centre of a three-dimensional immersive … .
   a) surrounding b) environment c) territory

2. What profession was not mentioned in the text?
   a) plumber b) repairman c) turner

3. Make sure you won't be down with … .
   a) wiring b) current c) lightning

4. … assemblies have a capability of getting closer to head – tracking, hand-tracking, eye-tracking and the synchronized use of computers across all the walls of a box.
   a) many b) few c) a few

5. When doing design reviews you can look at the … of an excavator's cab.
   a) ergonomics b) economics c) electronics

6. The user at the center of a three-dimensional immersive environment can do any … of design changes.
   a) quality b) volume c) amount

7. And what you are looking at there is not simulating … movements.
   a) nature b) bodily c) screen

GRAMMAR

Infinitive

Table 6.1

Infinitive forms

Model 1: to V	I am glad **to help** him.
Model 2: **to be V_3**	I am glad **to be helped**.
Model 3: to have V_3	I am glad **to have helped**.
Model 4: **to have been V_3**	I am glad **to have been helped**.

6.26. Complete the following sentences with the correct infinitive forms, as in the model.

Model: The engineers are glad **to have obtained** such good results. *(что получили; **to obtain** - получать)*

… this experiment will not take much time. (Завершение / Завершить; *to complete*)

1. He hates … . (когда его прерывают; *to interrupt*)
2. … computers more reliable transistors were used. (Для того (чтобы) изготовить; *to make*)
3. We must have all the data … the right answer. (чтобы дать; *to give*)
4. … this work one must have all the necessary equipment. (Для того чтобы выполнить / Для выполнения; *to perform*)
5. I am happy … . (что меня наградили; *to award*)
6. … an experiment of this kind seems nearly impossible. (Проведение / Провести; *to conduct*)
7. I am ready … it for you. (сделать; *to do*)
8. Analytical engine was invented … data. (для сохранения / чтобы сохранять; *to store*)
9. … a message requires some energy. (Передача / Передать; *to transmit*)

Table 6.2

Infinitive and Gerund functions

Function	Example
Subject	**To translate / Translating** articles is difficult.
Part of predicate	His task was **to translate** / **translating** the article in time.
Object	He likes **to translate** / **translating** technical articles.
Attribute	He was the first **to translate** the article. Here is the article **to be translated**.
	There are some ways *of* **translating** technical articles.
Adverbial modifier	He went home **to translate** / *for* **translating** the article. **To translate** articles you must know English well.

6.27. Rewrite each of these sentences, as in the model.

Model:

An important function of the operating system is **to manage** the computer's resources.
Managing the computer's resources is an important function of the operating system.

1. One task of the supervisor program is to load into memory nonresident programs as required.
2. The role of the operating system is to communicate directly with the hardware.
3. One of the key functions of the operating system is to establish a user interface.
4. An additional role is to provide services for applications software.
5. Part of the work of mainframe operating systems is to support multiple programs and users.
6. The task in most cases is to facilitate interaction between a single user and a PC.
7. One of the most important functions of a computer is to process large amounts of data quickly.
8. The main reason for installing more memory is to allow the computer to process data faster.

6.28. Translate the sentences and choose the right variant. Pay attention to the functions of the infinitive.

1. I am glad **to have finished** this important experiment.
   a) закончить b) что закончил c) закончил
2. I was the first **to apply** this method.
   a) применить b) применил c) что применил
3. The information **to be used** is taken from the journal.
   b) использована a) которая будет использована c) которую используют
4. They were happy **to have been sent** to the international conference.
   a) отправиться b) что их отправили c) что отправились
5. **To complete** this experiment he spent much time in the laboratory.
   a) закончить b) для того чтобы закончить c) заканчивать
6. A problem **to be solved** by a digital computer must be expressed in mathematical terms that the computer can work with.
   a) которую решили a) которую решают b) которую нужно решить
7. **To use** atomic energy for peaceful purposes is the task of our scientists.
   a) Чтобы использовать b) использовать
   c) Для того чтобы использовать
8. The devices **to be used** in this experiment will be very effective.
   a) которые будут использовать b) используемые
   c) использовали

6.29. Translate the following sentences paying attention to the infinitive functions.

1. There is only one signal **to be detected**.
2. The device **to be described** in this article was improved by our engineers.
3. The purpose of the test is **to determine** the mechanical characteristics of a material.
4. **To investigate** these data one has to apply new techniques.
5. The engine **to be installed** in this car is very powerful.
6. **To protect** personnel from radiation is a very important task.
7. All data **to be entered** into the computer memory must be carefully checked.
8. Telecoms companies were among the first **to give** their customers facilities such as Internet access or mobile telephony.
9. **To conduct** an electric current we need a source of power.
10. The problem **to be solved** is of great importance for this branch of science.
11. His task was **to measure** voltage.
12. The design of a mechanism depends on the work **to be done**.
13. We know this scientist **to have made** an important discovery in electronics.
14. The lecture **to be attended** by the delegation will take place in the main hall.
15. **To illustrate** the use of the technique described in this article two examples are now presented.
16. A linear differential equation results from the assumptions **to be made**.

Infinitive Constructions

Table 6.3

Complex Object

We know **him to be** a good programmer. = We know **(that) he is** a good programmer.

I hope **her to come**. = I hope **that she will come**.

Particle 'to' is not used after the verbs ***to see, to hear, to feel, to watch, to observe, etc.***

6.30. Change the following complex sentences given below according to the model and translate them.

Model 1: Everybody knows **that Byron is** a great poet.
Everybody knows **Byron to be** a great poet.

Model 2: Our teacher likes **when we ask** questions.
Our teacher likes **us to ask** questions.

1. I want (that) this article will be published in tomorrow's newspaper.
I want ... in tomorrow's newspaper.

2. I expect (that) the letter will come tomorrow.
   I expect ... tomorrow.
3. I hate when keys are lost.
   I hate ... lost.
4. I know (that) your father is an outstanding scientist.
   I know ... an outstanding scientist.
5. I want that you will do it yourself.
   I want ... yourself.

6.31. Translate the following sentences paying attention to the complex object.

1. We didn't want anybody to stop the experiment.
2. Everybody noticed him to be proud of the results received.
3. The authorities of the company expect the contract to be signed immediately.
4. I heard his name to be mentioned among the members of the students' research team.
5. We did not expect you to do so much.
6. They saw his activity bring great success.
7. Everybody knew her to be a progressive scientist.
8. I want you to be more attentive.
9. The group watched the computer operate.
10. We wanted them to achieve success.
11. We expected the delegation to come at the end of the week.
12. I often heard him tell the students about his native land.
13. They expected us to take part in the discussion.
14. I want the dictation to be written well.
15. He heard someone call his name.
16. I want these formulas to be remembered.
17. We found out the profit to have increased this year.
18. I felt this to be true.
19. We heard him speak at the seminar.
20. The Intel developers want the computer to be noiseless.

6.32. Translate the following sentences from Russian into English using complex object.

1. Я хочу, чтобы вы перевели эту статью.
2. Мы рассчитываем, что вы нам поможете.
3. Я знаю, что она – лучшая студентка.
4. Она хотела, чтобы мы пришли.
5. Они хотели, чтобы работа была сделана вовремя.

Table 6.4

Complex Subject

He *is known* **to be** a good programmer.

=

It is known **that he is** a good programmer.

to think, to consider, to know, to expect, to believe
to suppose, to report, to prove, to say

6.33. Change the following complex sentences given below according to the model and translate them.

Model 1: Scientists consider that his invention is of great importance.
His invention is considered to be of great importance.

Model 2: **It is said that this engineer has invented** a new machine.
This engineer is said to have invented a new machine.

1. It is supposed that that you will graduate in four years.
   You ... in four years.
2. It is known that many books are published in our country every year.
   Many books ... in our country every year.
3. They say that this experiment has been completed successfully.
   This experiment ... successfully.
4. We consider that he is one of the most promising nuclear physicists.
   He ... one of the most promising nuclear physicists.
5. It is reported that the expedition has reached its destination.
   The expedition ... its destination.

Table 6.5

Special cases of using Complex Subject

to be (un)likely	**She** *is (un)likely* **to change** her opinion.
to be sure	He **is sure to be back**.
to be certain	Under these conditions **the output** *is certain* **to increase**.
to seem	**He** *seems* **to know** English. **They** *seem* **to know** about it.
to appear	**He** *appears* **to know** his subject well.
to turn out	**The experiment** *turned out* **to be** a success.
to happen	**He** *happened* **to be** there.

6.34. Change the following complex sentences given below according to the model and translate them.

Model: It seems **that they know** all about it.
They **seem to know** all about it.

1. It seems **that you have read** a lot before entering the university.
   You … seem … a lot before entering the university.
2. It appears that the new methods of work are very effective.
   The new methods of work ... very effective.
3. It is very likely **that the software industry will see** great changes.
   The software industry ... big changes.
4. It so happened **that I overhear** their conversation.
   I happened ... their conversation.
5. It turned out **that he was** a good specialist.
   He turned out … a good specialist.
6. It seemed **that the discussion was coming** to an end.
   The discussion ... to an end.

6.35. Read and translate the following sentences. Pay attention to the complex subject.

1. Wi-Fi is known to provide wireless transmission of data over a short range.
2. New generations of mobile phone standards are expected to offer advanced services.
3. Competition between handset suppliers is said to be good.
4. The program is not considered to have been realized.
5. Although many of these programs must be purchased separately, there appears to be one for virtually every operating system function.
6. The affect was considered not to be of any importance
7. They were sure to come to an understanding.
8. The working conditions turned out to be more difficult than it had been supposed .
9. This device was known to have been designed in that laboratory.
10. For a long time the atom was thought to be indivisible.
11. The helium atom was found to have two electrons.
12. Digital radio sets seem to be becoming less and less popular.
13. Laser cordless mouse is likely to be designed by Logitech company.
14. New anti-virus software is likely to protect against viruses and worms.
15. Traditionally, telecoms companies happened to make most of their profits from voice calls.
16. Windows is unlikely to remain the dominant force in software.
17. This work seems to take much time.

18. The operation seemed to be a complicated one.
19. He is sure to give us some useful information.
20. They are supposed to know about it more than they want to show.
21. The apparatus seemed to be in excellent condition.
22. This article is said to have been translated into all the languages of the world.

Table 6.6

Infinitive Construction with *for*

Subject	**For me to translate** this text is difficult.
Object	We waited **for him to come**.
Adverbial modifier	I'll reread the rule **for you to understand**. **For these experiments to be meaningful** the observations must be made.

6.36. Translate the following sentences. Point out the infinitive construction with *for*.

Model: – This question is easy enough **for me to solve**.

1. This situation is too complex for us to understand.
2. This work is simple enough for him to do.
3. This equation is too difficult for me to solve.
4. There is no reason for computer experts to use computers of the first generation nowadays.
5. For me to learn to speak English fluently is not easy.
6. The text was very interesting but rather difficult for the students to translate it without a dictionary.
7. For the results to be valid our technique should be used in combination with statistical analysis.
8. For such data to find application in further work their validity must be left in no doubt.
9. For the long-term experiments to be realizable various aspects of the problem must be taken into account.
10. For such suggestions to be of practical use they must be based on observation and experience.

APPENDIX (ПРИЛОЖЕНИЕ)

Основные суффиксы существительных

Суффиксы	Примеры	Перевод
-er **-or**	to read – reader to elect – elector	читать – читатель избирать – избиратель
-ant **-ent**	to assist – assistant to study – student	помогать – помощник изучать – студент
-ian	academy – academician	академия – академик
-ist	to type – typist	печатать – машинистка
-tion **-ation** **-sion** **-ssion**	to connect – connection to organize – organization to collide – collision to admit – admission	соединять – соединение организовывать – организация сталкиваться – столкновение допускать – допущение
-age	to clear – clearage	очищать – очистка
-ment	to fulfil – fulfilment	выполнять – выполнение
-ure	to press – pressure	давить – давление
-ance **-ence**	to appear – appearance to depend – dependence	появляться – появление зависеть – зависимость
-ing	to begin – beginning	начинать – начало
-ness	dark – darkness	темный – темнота
-ity **-th**	active – activity wide – width	активный – активность широкий – ширина
-dom **-ism** **-hood** **-ship**	free – freedom real – realism child – childhood friend – friendship	свободный – свобода действительный – реализм ребенок – детство друг – дружба

Основные суффиксы глаголов

Суффиксы	Примеры	Перевод
-en **-ify**	strength – to strengthen simple – to simplify	сила – усиливать простой – упрощать
-ize **-ate**	real – to realize active – activate	настоящий – осуществлять активный – активизировать

Основные суффиксы прилагательных

Суффиксы	Примеры	Перевод
-ant **-ent** **-ive**	to tolerate – tolerant to differ – different to act – active	терпеть – терпимый различаться – непохожий, другой, отличный (от) действовать – активный
-ful **-al**	use – useful centre – central	польза – полезный центр – центральный
-ic **-ous**	history – historic advantage – advantageous	история – исторический преимущество – выгодный
-y **-ly**	dirt – dirty day – daily	грязь – грязный день – ежедневный
-less (переводится приставкой *без-*, *с-*)	noise – noiseless	шум – бесшумный
-ish	old – oldish	старый – староватый

Префиксы с отрицательным значением

Префиксы	Примеры	Перевод
un- не- без (с)-	known – unknown limited – unlimited	известный – неизвестный ограниченный – безграничный
il- **im-** не- **in-** без (с)- **ir-**	logical – illogical polite – impolite accuracy – inaccuracy regular – irregular	логичный – нелогичный вежливый – невежливый точность – неточность регулярный – нерегулярный
non- не- без- (с)-	conductor – non-conductor	проводник – непроводник (изолятор)
dis- раз- не-	to connect – to disconnect ability – disability	соединять – разъединять способность – неспособность
anti- анти-	war – antiwar	военный – антивоенный
mis- означает «неверно»	to print – to misprint	печатать – сделать опечатку

Префиксы с разными значениями

Префиксы	Примеры	Перевод
super- сверх-	man – superman	человек (мужчина) – сверхчеловек (супермен)
over- пере-, над-	to heat – to overheat	нагревать – перегревать
sub- ниже-, под- и др.	dean – subdean system – subsystem	декан – заместитель декана система – подсистема
en- (*для образования глагола*)	large – to enlarge	большой – увеличить
post- после- **pre-** до-, заранее-	war – post(-)war heat – preheat	война – послевоенный нагреть – предварительно нагреть
re- снова, еще раз	to write – to rewrite to use – to reuse to elect – to re-elect (*пишется через дефис*)	писать – переписывать использовать – снова использовать избирать – переизбирать
semi- полу-	conductor – semiconductor	проводник – полупроводник
inter- меж(ду)-, взаимо-	change – interchange	обмен – взаимообмен

Литература

1. Лычковская Л.Е., Менгардт Е.Р. “English for Students of Technical Sciences”, учебное пособие, 2015 г., 465 стр. http://edu.tusur.ru/training/publications/149
2. Н.Д. Коваленко, Л.Е. Лычковская «Обучение чтению и переводу специальных текстов», учебное пособие – 2015 г, 196 стр. http://edu.tusur.ru/training/publications/984
3. http://www.topuniversities.com
4. https://en.wikipedia.org
5. http://www.ee.ucl.ac.uk
6. http://www.woopidoo.com
7. https://www.bbvaopenmind.com
8. http://www.wisegeek.net
9. http://www.wisegeek.com
10. http://www.wisegeek.org
11. http://www.buzzle.com
12. https://docs.google.com
13. http://www.paper2dwg.com
14. http://www.youtube.com