

Министерство науки и высшего образования Российской Федерации  
Нижекамский химико-технологический институт (филиал)  
федерального государственного бюджетного образовательного учреждения  
высшего образования  
«Казанский национальный исследовательский технологический университет»  
(НХТИ ФГБОУ ВО «КНИТУ»)



УТВЕРЖДАЮ

Заместитель директора по УР

Н.И. Никифорова

05 2022 г.

**ФОНД ОЦЕНОЧНЫХ СРЕДСТВ**

по дисциплине (модулю)

**Б1.О.03 Иностранный язык**

(наименование дисциплины (модуля))

**13.03.01 «Теплоэнергетика и теплотехника»**

(код и наименование направления подготовки/ специальности)

**«Энергообеспечение предприятий»**

(наименование профиля/программы/направленности/специализации)

**Бакалавр**

(квалификация)

**Очная**

(форма обучения)

Нижнекамск, 2022 г.

Составитель ФОС:

Доцент  
(должность)

  
(подпись)

А.А. Васильева  
(Ф.И.О)

Доцент  
(должность)

  
(подпись)

Г.Р. Ганиева  
(Ф.И.О)

Доцент  
(должность)

  
(подпись)

Р.С. Гараева  
(Ф.И.О)

Доцент  
(должность)

  
(подпись)

Д.А. Муртазина  
(Ф.И.О)

ФОС рассмотрен и одобрен на заседании кафедры иностранных языков,  
протокол от 21.03.2022 г. № 8.

Зав. кафедрой

  
(подпись)

Г.Р. Ганиева  
(Ф.И.О)

## СОГЛАСОВАНО

Протокол заседания кафедры ЭТЭОП, реализующей подготовку основной образовательной программы от 21.04.2022 г. № 8.

Зав. кафедрой

  
(подпись)

Е.В. Тумаева  
(Ф.И.О)

Эксперт:

Руководитель ООП Вафин Д.Б., проф. кафедры ЭТЭОП НХТИ ФГБОУ ВО «КНИТУ»  
(Ф.И.О., должность, организация, подпись)



***Перечень компетенций и индикаторов достижения компетенций с указанием этапов формирования  
в процессе освоения дисциплины***

Компетенция:

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

УК-4.1 - Знает основы деловой коммуникации, правила и закономерности устной и письменной формы речи, требования к деловой коммуникации на русском и иностранном языках;

УК-4.2 - Умеет применять на практике деловую коммуникацию в устной и письменной формах, методы и навыки делового общения на русском и иностранном языках;

УК-4.3 - Владеет навыками чтения и перевода текстов на иностранном языке в профессиональном общении; навыками деловых коммуникаций в устной и письменной форме на русском и иностранном языках.

<b><i>Индикаторы достижения компетенции</i></b>	<b><i>Этапы формирования компетенции</i></b> <i>(указать все темы из РПД)</i>				<b><i>Наименование оценочного средства</i></b>
	<b><i>Лекции</i></b>	<b><i>Практические занятия</i></b>	<b><i>Лабораторные занятия</i></b>	<b><i>Курсовой проект (работа)</i></b>	
УК-4 УК-4.1 УК-4.2 УК-4.3	<b><i>Не предусмотрены</i></b>	Тема 1, Тема 2, Тема 3, Тема 4, Тема 5, Тема 6.	<b><i>Не предусмотрены</i></b>	<b><i>Не предусмотрены</i></b>	Перевод профессионально-ориентированного текста; устные лексические темы; контрольная работа; итоговая контрольная работа.

***Перечень оценочных средств по дисциплине (модулю)***

**1 семестр**

<b><i>Оценочные средства</i></b>	<b><i>Кол-во</i></b>	<b><i>Min, баллов (базовый уровень)</i></b>	<b><i>Max, баллов (повышенный уровень)</i></b>
Перевод профессионально-ориентированного текста	2	22	30
Устные лексические темы	3	22	40
Контрольная работа	1	16	30
Итого:		60	100

**2 семестр**

<b>Оценочные средства</b>	<b>Кол-во</b>	<b>Min, баллов (базовый уровень)</b>	<b>Max, баллов (повышенный уровень)</b>
Перевод профессионально-ориентированного текста	2	3	5
Устные лексические темы	3	6	8
Итоговая контрольная работа	1	3	7
Экзамен	1	24	40
Итого:		36	60

### *Шкала оценивания*

Цифровое выражение	Выражение в баллах:	Словесное выражение	Критерии оценки индикаторов достижения при форме контроля:	
			экзамен / зачет с оценкой	зачет
5	87 - 100	Отлично (зачтено)	Оценка «отлично» выставляется студенту, если теоретическое содержание курса освоено полностью, без пробелов; исчерпывающе, последовательно, четко и логически стройно излагает материал; свободно справляется с задачами, вопросами и другими видами применения знаний; использует в ответе дополнительный материал все предусмотренные программой задания выполнены, качество их выполнения оценено числом баллов, близким к максимальному; анализирует полученные результаты; проявляет самостоятельность при выполнении заданий	Оценка «зачтено» выставляется студенту, если ответы на вопросы по темам дисциплины последовательны, логически изложены, допускаются незначительные недочеты в ответе студента, такие как отсутствие самостоятельного вывода, речевые ошибки и пр
4	74 - 86	Хорошо (зачтено)	Оценка «хорошо» выставляется студенту, если теоретическое содержание курса освоено полностью, необходимые практические компетенции в основном сформированы, все предусмотренные программой обучения учебные задания выполнены, качество их выполнения достаточно высокое. Студент твердо знает материал, грамотно и по существу излагает его, не допуская существенных неточностей в ответе на вопрос.	
3	60 - 73	Удовлетворительно (зачтено)	Оценка «удовлетворительно» выставляется студенту, если теоретическое содержание курса освоено частично, но пробелы не носят существенного характера, большинство предусмотренных программой заданий выполнено, но в них имеются ошибки, при ответе на поставленный вопрос студент допускает неточности, недостаточно правильные формулировки, наблюдаются нарушения логической последовательности в изложении программного материала.	
2	Ниже 60	Неудовлетворительно (не зачтено)	Оценка «неудовлетворительно» выставляется студенту, если он не знает значительной части программного материала, допускает существенные ошибки, неуверенно, с большими затруднениями выполняет практические работы, необходимые практические компетенции не сформированы, большинство предусмотренных программой обучения учебных заданий не выполнено, качество их выполнения оценено числом баллов, близким к минимальному	Оценка «не зачтено» выставляется студенту, если студент не знает основных понятий темы дисциплины, не отвечает на дополнительные и наводящие вопросы преподавателя.

### Краткая характеристика оценочных средств

<i>№ п/п</i>	<i>Наименование оценочного сред- ства</i>	<i>Краткая характеристика оценочного средства</i>	<i>Представление оценочного сред- ства в фонде</i>
<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>
1.	Комплект про- фессионально- ориентированных текстов для письменного перевода	Это вид учебной работы, где <i>реализованы все коммуникативные задачи. Совершены все необходимые переводческие трансформации. Перевод звучит естественно. Переводческие навыки проявлены в достаточной мере. Связный текст, адекватное применение лексико-грамматических средств, их диапазон широк. Языковые ошибки не существенны. Адекватно переданы функционально-стилистические особенности текста. Правильно передана структура предложения с точки зрения динамического синтаксиса (тема-рема). Сочетаемость слов, характерная для переводящего языка (ПЯ), не нарушается. Значения слов в контексте правильно поняты</i>	Тексты для перево- да; послетекстовые контрольные вопро- сы и задания.
2.	Устные лексиче- ские темы	Средство контроля, организованное как специ- альная беседа преподавателя с обучающимся на темы, связанные с изучаемой дисциплиной, и рассчитанное на выяснение объема знаний обу- чающегося по определенному разделу, теме, про- блеме и т.п.	Вопросы по темам/разделам дис- циплины
3.	Контрольная ра- бота	Средство проверки умений применять получен- ные знания для решения задач определенного ти- па по теме или разделу.	Комплект контроль- ных заданий по ва- риантам
4.	Итоговая кон- трольная работа	Средство проверки умений применять получен- ные знания для решения задач определенного ти- па по теме или разделу.	Комплект контроль- ных заданий по ва- риантам

Министерство науки и высшего образования Российской Федерации  
Нижекамский химико-технологический институт (филиал) федерального государственного бюджетного образовательного учреждения  
высшего образования  
«Казанский национальный исследовательский технологический университет»

*Факультет Подготовительный  
Кафедра иностранных языков*

Направление подготовки 13.03.01 Теплоэнергетика и теплотехника  
Профиль подготовки «Энергообеспечение предприятий»

**Комплект профессионально-ориентированных текстов  
для письменного перевода**

**1. HISTORY OF COMMUNICATION SYSTEMS**

The history of communication is an important part of the larger history of communication. Early communications included smoke signals and drums. Drums were used by natives in Africa, New Guinea and South America, and smoke signals in North America and China.

In 1792, a French engineer, Claude Chappe built the first visual telegraphy (or semaphore) system between Lille and Paris. However, semaphore as a communication system suffered from the need for skilled operators and expensive towers often at intervals of only ten to thirty kilometers (six to nineteen miles). As a result, the last commercial line was abandoned in 1880.

The first commercial electrical telegraph was constructed in England by Sir Charles Wheatstone and Sir William Fothergill Cooke. The first successful transatlantic telegraph cable was completed on the 27th of July, 1866, allowing transatlantic telecommunication for the first time.

The conventional telephone was invented by Alexander Bell in 1876. The first commercial telephone services were set-up in 1878 and 1879 on both sides of the Atlantic in the cities of New Haven and London. The technology grew quickly; intercity lines and telephone exchanges were built in every major city of the United States by the mid-1880s.

In December 1901, Guglielmo Marconi established wireless communication between Britain and the United States; he received the Nobel Prize for physics in 1909 (which he shared with Karl Braun).

On the 25th of March, 1925, Scottish inventor John Logie Baird publicly demonstrated the transmission of moving silhouette pictures at the London department store Selfridges. Baird's first devices relied upon the Nipkow disk and thus became known as the mechanical television.

However, most of the 20th century televisions depended upon the cathode ray tube invented by Karl Braun. John Logie Baird switched from mechanical television and became a pioneer of colour television using cathode-ray tubes.

In September 1940, George Stibitz was able to transmit problems using teletype to his Complex Number Calculator in New York and to receive the computed results back at Dartmouth College in New Hampshire. In the 1960s, researchers started investigating packet switching – a technology that would allow chunks of data to be sent to different computers without first passing through a centralized mainframe. In September 1981, RFC 791 introduced the Internet Protocol v4 (IPv4) and RFC 793 introduced the Transmission Control Protocol (TCP) – thus creating the TCP/IP protocol that much of the Internet relies upon today.

Internet access became widespread late in the century, using the old telephone and television networks.

**1. Choose the correct variant and complete the following sentences.**

1. The first commercial electrical telegraph was constructed by ...
  - a) George Stibitz.
  - b) Guglielmo Marconi.
  - c) Sir Charles Wheatstone and Sir William Fothergill Cooke.
2. The conventional telephone was invented by ...
  - a) John Logie Baird in 1845.
  - b) Alexander Bell in 1876.
  - c) George Stibitz in 1940.
3. In December 1901, Guglielmo Marconi ...
  - a) established wireless communication between Britain and the United States.
  - b) became a pioneer of colour television.
  - c) invented the conventional telephone.
4. On the 25th of March, 1925, Scottish inventor John Logie Baird ...
  - a) started to investigate packet switching.
  - b) publicly demonstrated the transmission of moving silhouette pictures.
  - c) constructed the first commercial electrical telegraph.

**2. Answer the questions to the text.**

1. What did early telecommunications include?
  2. Who were drums and smoke signals used by?
  3. When was the first visual telegraphy (or semaphore) system built?
  4. Why was the last commercial line abandoned?
5. Where was the first commercial electrical telegraph constructed?

**2. HISTORY OF RADIO**

Within the history of radio, several people were involved in the invention of radio and there were many key inventions in what became the modern system of wireless. Radio development began as “wireless telegraphy”. Radio was developed along with two other key inventions, the telegraph and the telephone. During the early development of wireless technology and long after its wide use people disputed who invented the radio. The matter was important for economic, political and nationalistic reasons.

The history of radio begins perhaps with Joseph Henry, an American physicist, who discovered in 1842 that electrical discharges were oscillating. Then a step forward was taken by James Maxwell, a Scottish physicist and one of the great mathematical geniuses of the 19th century. By means of mathematical reasoning Maxwell showed that all electrical and magnetic phenomena could be reduced to stresses and motions in the medium, which he called the ether. Today we know that this electrical medium does not exist in reality. Yet this concept helped greatly, and allowed Maxwell to put forward his theory that the velocity of electric waves in air should be equal to the velocity of light waves. Both of them were the same kind of waves and differed only in wave length.

In 1878, David Hughes, an American physicist, made another important discovery in the history of radio. He found that a loose contact in a circuit containing a battery and a telephone receiver would give rise to sounds in the receiver which corresponded to the sounds that hit the diaphragm of the mouthpiece. Hughes contemporaries claimed that the detected effects were due to electromagnetic induction. The scientist used his apparatus to transmit over a few hundred yards, using a transmitter and a receiver.

Next we must turn to Heinrich Hertz, the famous German physicist, who was the first to create, detect and measure electromagnetic waves. He experimentally confirmed Maxwell's theory. However, Hertz did not devise a system for actual general use nor describe the application of the technology. He only demonstrated that radio radiation had all the properties of waves (now called electromagnetic radiation). His setup for a source and detector of radio waves (then called



Hertzian waves) contained a primitive radio system capable of transmitting and receiving radio waves through free space. Hertz could detect radio waves about 20 meters from the transmitter in his laboratory. He did not try to transmit further because he wanted to prove electromagnetic theory, not to develop wireless communication.

In 1895, Russian scientist A.S. Popov demonstrated the first radio receiver which he called “an apparatus for the detection and registration of electric oscillations”. He became the inventor of the radio, and May 7 is celebrated each year as ‘Radio Day’ in the Russian Federation.

The word “radio” comes from the Latin word “radius” – a straight line drawn from the centre of a circle to a point on its circumference. The term “radio” now means the radiation of waves by transmitting stations, their propagation through space and reception by receiving stations. The radio technique has become closely associated with many other branches of science and engineering.

**1. Read the following statements and decide if they are true (T) or false (F).**

1. Only few people were involved in the invention of radio.
2. Radio was developed along with telephone and telegraph.
3. Hertz put forward the theory of the ether.
4. Electrical waves and light waves have different wave length.
5. Hertz tried to develop wireless communication.
6. Popov invented the first radio receiver.
7. The term “radio” means the detection and registration of electric oscillations.

**2. Answer the questions to the text.**

1. What scientists were involved in the invention of radio?
2. Who discovered the oscillations of electric discharges?
3. What was Maxwell famous for?
4. Does the ether exist in reality?
5. What discovery did David Hughes make?

**3. WHAT IS A COMPUTER?**

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

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

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

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

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

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

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

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

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

### **1. Answer the questions to the text.**

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

### **2. Find the English equivalents:**

Сложная сеть электронных цепей; управлять (приводить в действие) переключателями; возможные состояния; хранить (запоминать) числа; обрабатывать символы; посредством ввода сигналов; включать; выключать; размагничивать сердечники; обработка информации; информация в виде команд; символы, называемые данными; выполнять математические операции; выдавать результаты; обеспечивать необходимую информацию; иметь замечательные возможности; основные свойства; сложение, вычитание, деление, умножение; возведение в степень; средства для общения с пользователем; устройство ввода; дисковод; считывать информацию; вывод информации; катоднолучевая трубка; принимать решения; выполнять тысячи логических операций; без усталости; находить решение задачи; значительно меньший промежуток времени; человек; нудная рутинная работа; в соответствии с введенной программой; вырабатывать свои суждения; возможности ограничены программой, заложенной в него человеком; дать требуемую информацию; электрические импульсы; со скоростью света; мгновенно производить огромное количе-

ство математических операций; человеку может не хватить всей жизни, чтобы закончить работу.

#### **4. DEVELOPMENT OF ELECTRONICS**

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

Today it is difficult to imagine our life without electronics. It surrounds us everywhere. Electronic devices are widely used in scientific research and industrial designing, they control the work of plants and power stations, calculate the trajectories of space-ships and help the people discover new phenomena of nature. Automatization of production processes and studies on living organisms became possible due to electronics.

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

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

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

##### **1. Answer the questions to the text.**

1. What is electronics? 2. Can you imagine modern life without electronics? 3. Where are electronic devices used? 4. What was the beginning of electronics development? 5. What made the progress in radio communication technology possible? 6. What is the transistor? 7. When was the transistor invented? 8. What aim was realized with the invention of the transistor? 9. When were integrated circuits discovered? 10. What advantages did the transistors have over the vacuum tubes?

##### **2. Find the English equivalents:**

Прикладная физика; передача и прием информации; поток электронов; трудно представить; научные исследования; промышленное проектирование; вычислять траекторию космических кораблей; обнаруживать явления природы; благодаря электронике; отправная точка; способствовать управлению сигналами; быстрый рост; разнообразие ламп; создание первых компьютеров; полностью заменил; полупроводниковый кристалл; умень-

шить вес; сократить стоимость; потребление электроэнергии; высокая надежность; твердотельные компоненты; довольно быстро... но гораздо ниже; высокоскоростной компьютер; микроволновые системы связи; полупроводниковая технология; область науки; интегральная схема; пакетная обработка; сборка дискретных компонентов на кристалле; снизить производственные затраты; обеспечить высокую скорость.

## **5. MICROELECTRONICS AND MICROMINIATURIZATION**

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

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

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

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

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

Electronics has extended man's intellectual power. Micro-electronics extends that power still further.

### **1. Answer the questions to the text.**

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

### **2. Find the English equivalents:**

Интенсивные усилия; увеличить надежность; увеличить параметры; уменьшить размер и стоимость; вряд ли кто-нибудь мог прогнозировать; количественные и качественные изменения; область науки; пленочная технология; полупроводниковый метод; сокращать элементы схемы; суть миниатюризации в том, что; создать схемы с долгим сроком службы; чрезвычайно высокая скорость реакции; чем меньше, тем быстрее; преимущество;

расходовать энергию; польза; уменьшение расстояния между элементами схемы; большая интегральная схема; микроволновая интегральная схема; волновод; линия передач; смещать; изображение схем; расширять возможности человека.

## 6. TRANSISTOR

The transistor is the key element in practically all modern electronics, and is considered by many to be one of the greatest inventions of the twentieth century. Its importance in today's society rests on its ability to be mass produced using a highly automated process (semiconductor device fabrication) that achieves astonishingly low per-transistor costs.

Although several companies each produce over a billion individually-packaged (known as discrete) transistors every year, the vast majority of transistors now produced are in integrated circuits (IC) along with diodes, resistors, capacitors and other electronic components, to produce complete electronic circuits.

The essential usefulness of a transistor comes from its ability to use a small signal applied between one pair of its terminals to control a much larger signal at another pair of terminals. This property is called gain. A transistor can control its output in proportion to the input signal, that is, act as an amplifier. From mobile phones to televisions, vast numbers of products include amplifiers for sound reproduction, radio transmission, and signal processing. Modern transistor audio amplifiers of up to a few hundred watts are common and relatively inexpensive.

Or, the transistor can be used to turn current on and off in a circuit as an electrically controlled switch, where the amount of current is determined by other circuit elements. Transistors are commonly used as electronic switches, for both high power applications including switched-mode power supplies and low power applications such as logic gates.

Prior to the development of transistors, vacuum tubes (valves) were the main active components in electronic equipment. The key advantages that have allowed transistors to replace their vacuum tubes predecessors in most applications are:

- Small size and minimal weight, allowing the development of miniaturized electronic devices.
- Highly automated manufacturing process, resulting in low per-unit cost.
- Lower possible operating voltages, making transistors suitable for small, battery-powered applications.
- No warm-up period for cathode heaters required after power application.
- Lower power dissipation and generally greater energy efficiency.
- Higher reliability and greater physical ruggedness.
- Extremely long life. Some transistorized devices have been in service for more than 30 years.
- Insensitivity to mechanical shock and vibration.

There are also some limitations in using transistors. Silicon transistors do not operate at voltages higher than above 1000 volts. In contrast, electron tubes have been developed that can be operated at tens of thousands of volts. High power, high frequency operation is better achieved in electron tubes due to improved electron mobility in a vacuum. Silicon transistors are much more sensitive than electronic tubes to an electromagnetic pulse, such as generated by an atmospheric nuclear explosion.

### **1. Read the following statements and decide if they are true (T) or false (F).**

1. The transistor is one of the greatest achievements of the 19th century.
2. An IC, that is, a transistor with diodes, resistors, capacitors and other electronic components is known as discrete transistor.
3. Modern transistor audio amplifiers are relatively expensive.

4. One of the advantages of a transistor over a vacuum tube is its big size and maximum weight.
5. A transistor is very stable to mechanical shock and vibration.
6. There are not any limitations in using transistors.
7. Silicon transistors are much less sensitive than electronic tubes to an electromagnetic pulse.

**2. Complete these sentences according to the text.**

- |   |  |
|---|--|
| 1. Electron mobility is higher in ... .   | a. every year                                |
| 2. Silicon transistors are much more sensitive than electronic tubes to ...       | b. in a vacuum                               |
| 3. Mechatronic circuits have replaced electromechanical devices in ...            | c. IC  |
| 4. Over a billion of individually-packaged transistors are produced ...           | d. useful device                             |
| 5. Transistors can be easily mass-produced using a ...                            | e. importance in today's society             |
| 6. Very low cost of mass production is the main reason of transistor's ...        | f. an electromagnetic pulse                  |
| 7. Transistor's flexibility and reliability has made it ...                       | g. an equivalent mechanical control function |
| 8. Diodes, resistors, transistors along with other electronic components form ... | h. gain                                      |
| 9. It is easier and cheaper to use a standard microcontroller than to design ...  | i. controlling appliances and machinery      |
| 10. The ratio of the output signal to the input signal is called ...              | j. a highly automated process                |

## 7. AUDIO RECORDING SYSTEMS

Charles Cros, a French scientist, produced a theory concerning a phonograph, but he didn't manufacture a working model. It was Thomas Edison who produced a working model. Edison conceived the principle of recording and reproducing sound in 1877 as a byproduct of his efforts to "play back" recorded telegraph messages and to transmit them by telephone.

Edison's early phonograph recorded onto a tinfoil sheet phonograph cylinder using up-down motion of the stylus. The tinfoil sheet was wrapped around a grooved cylinder, and the sound was recorded as indentations into the foil. Edison's early patents show that he also considered the idea that sound could be recorded as a spiral onto a disc, but Edison concentrated his efforts on cylinders, since the groove on the outside of a rotating cylinder provides a constant velocity to the stylus in the groove.

Alexander Graham Bell and his two associates took Edison's tinfoil phonograph and modified it considerably to make it produce sound from wax instead of tinfoil. They began their work at Bell's Volta Laboratory in Washington, D.C., in 1879 and continued until they were granted basic patents in 1886 for recording in wax.

It took many years and further improvements before the recording industry became a major factor in home entertainment. Disk recording is neither better nor worse than cylinder recording in potential audio fidelity. But there were commercial advantages to a disk system since the disk could be easily mass produced by molding and stamping and it required less storage space for a collection of recordings.

For a long time hi-fi recordings have been produced on vinyl gramophone records. Records use an analogue recording system, which stores patterns by cutting a continuous groove in a vinyl disk. The sound can be reproduced by spinning the record and using the movement of a metal

needle in the groove to produce varying magnetic fields. These magnetic fields are then processed to produce the sound. A typical LP (long-playing record) has a recording capacity of about 45 minutes.

A digital recording system, known as a compact disc (CD) system, was introduced in 1982. This uses a laser optical mechanism in which a laser beam reads marks on the surface of a specially prepared perspex disk. It gives near-perfect reproduction of sound and the sound quality does not deteriorate with use. Some of the problems associated with vinyl records are eliminated such as “crackle” caused by dust and static, and “jumping”, due to scratches on the recording surface.

In a CD system, a recording is made by electronically sampling the sound 44,100 times every second. The electronic samples are used to control a laser beam, which makes a pattern of very small pits in the surface of the plastic disc. The audio pattern is represented by the length of the pits and the distance between them. The pits are arranged in circular tracks. A typical CD has about 20,000 circular tracks and a maximum recording capacity of 74 minutes.

To play back the recording, the disk is made to revolve at a constant speed and a laser beam is directed at its surface. The varying reflection of the laser beam is fed into a digital-to-analogue converter (DAC). This produces the electronic signals, which are amplified to drive a loudspeaker.

In 1989, sales of compact disks (CDs) exceeded sales of long-play albums (LPs) for the first time. By 1990, CD sales were more than double those of LPs. Cheaper CD players and the introduction of mid-price and budget-price discs have been partly responsible for the increase in CD sales.

**1. Read the following sentences and decide if they are true (T) or false (F).**

1. It was Alexander Bell who produced the first working model of a phonograph.
2. A phonograph was manufactured in 1887.
3. Edison concentrated his efforts on discs.
4. Bell produced sound from wax instead of tinfoil.
5. Recording industry became a kind of entertainment.
6. A compact disc system was introduced in 1980s.
7. A laser optical mechanism gives near-perfect reproduction of sound.
8. The quality of sound in CDs greatly deteriorate with use.
9. Crackle is not caused by dust and static.
10. Scratches on the recording surface contribute to “jumping”.
11. By 1990 sales of CDs exceeded sales of LPs.
12. Cheapness of CDs is responsible for the increase in sales.

**2. Answer the questions to the text.**

1. What is Thomas Edison famous for?
2. What is a phonograph?
3. How was the sound recorded: on the foil or on the disc?
4. What did Edison concentrate his efforts on? Why?
5. How did Bell modify tinfoil phonograph?

**8. DIGITAL AUDIO PLAYER**

A digital audio player, or DAP, usually referred to as an MP3 player, is a consumer electronic device that has the primary function of storing, organizing and playing audio files. Some DAPs are also referred to as portable media players as they have image-viewing and/or video-playing support.

The immediate predecessor in the market place of the digital audio player was the portable CD player. Kane Kramer designed one of the earliest digital audio players which was capable of approximately 3.5 minutes of audio playback but it didn't enter commercial production. The

world's first company to announce a portable MP3 player and the attendant system for uploading MP3 audio content to a personal computer and then downloading it onto a personal MP3 player was Audio Highway in 1996.

The next company on the MP3 player scene was South Korea-based Saehan Information Systems which began selling its "MPMan" player in the middle of 1998. In 2001 the first MP3 players were installed into mobile phones in South Korea and the first artist to sell songs as MP3 file downloads directly to mobile phones was Ricky Martin. The innovation spread rapidly and by 2005, more than half of all music sold in South Korea was sold directly to mobile phones. The idea spread across the globe and by 2005 all five major handset makers, Nokia, Motorola, Samsung, LG and SonyEricsson had released music phones. By 2006, more MP3 players were sold in musicphones than all stand-alone MP3 players put together. The rapid rise of the music phone was a primary reason for developing iPhone. Today more than half of all mobile phones in the world have an MP3 player.

Digital sampling is used to convert an audio wave to a sequence of binary numbers that can be stored in a digital format, such as MP3. Common features of all MP3 players are a memory storage device, such as flash memory or a miniature hard disk drive, an embedded processor and an audio codec microchip to convert the compressed file into an analogue sound signal.

Most DAPs are powered by rechargeable batteries, some of which are not user-replaceable. They have a 3.5 mm stereo jack; music can be listened to with headphones, or played via an external amplifier. Nearly every DAP consists of some kind of display screen and a set of controls with which the user can browse through the library of music contained in the device, select a track, and play it back. The controls can range from the simple buttons as are found on most typical CD players for skipping through tracks or stopping/starting playback to full touch-screen controls. One of the more common methods of control is some type of the scroll wheel with associated buttons.

Content is placed on DAPs typically through a process called "syncing", by connecting the device to a personal computer, typically via USB, and running any special software that is often provided with the DAP on an enclosed CD-ROM, or downloaded from the manufacturer's website. The music, or other content such as TV episodes or movies, is added to the software to create a "library". The library is then "synced" to the DAP via the software. Many players have a built-in microphone which allows recording. Usually recording quality is poor, suitable for speech but not music.

The risk of hearing damage from digital audio players depends on both sound level and listening time. The listening habits of most users are unlikely to cause hearing loss, but some people are putting their hearing at risk, because they set the volume control very high or listen to music at high levels for many hours per day. Such listening habits may result in temporary or permanent hearing loss, tinnitus, and difficulties understanding speech in noisy environments.

**1. Choose the correct variant and complete the following sentences.**

1. The first person who designed the earliest digital audio player was
  - a) Ricky Martin
  - b) Kane Kramer
  - c) A. Bell
2. By 2006 most MP3 players were sold as
  - a) stand-alone
  - b) music phones
  - c) iPhones
3. The most serious hearing damage caused by audio players is:
  - a) hearing loss
  - b) difficulties understanding speech in noisy environments



- c) tinnitus
- 4. DAP is connected to a personal computer via
  - a) CD-ROM
  - b) USB
  - c) cable
- 5. Most DAPs are powered by
  - a) external amplifiers
  - b) jack
  - c) rechargeable batteries

**2. Match the English terms with Russian definitions.**

- |                     |  |
|---------------------|--|
| 1. Digital sampling | a. цифровой аудиоплеер                       |
| 2. CD-ROM           | b. цифровая выборка, дискретизация           |
| 3. USB              | c. компакт диск, доступный только для чтения |
| 4. DAP              | d. универсальная последовательная шина       |

## 9. ROBOTS

The origin of the word “robot” is said to have appeared first in a play called RUR (Rossum’s Universal Robots) written by a Czech playwright, Karel Čapek. Men riding on a fully-packed train in the outskirts of Prague were just like machines lacking in individuality, Čapek called such men robots in his play by parodying the word ‘robota’ meaning slave labour. The word ‘robot’ came into being by the bitter satire of the condition of man who was deprived of his humanity and became like a machine.

For years robots have been quite familiar figures in our minds in the form of mechanical-driven dolls, or the heroes in children’s cartoons who exhibit superhuman qualities. However, the image of industrial robot used in manufacturing processes is far different from such. Among industrial robots, there are different types ranging from hand-operated “magic hands” to others equipped with intelligent faculties by incorporating micro-computers. Hence, there is no clear-cut definition for industrial robots.

The automatically controlled industrial manipulators are divided into three generations: programmed, adaptive and intellectual. Characteristic of the first generation – the programmed robots – is that their control system acts according to a rigid oft-repeated programme all the time. But the programmed robot is easily retuned to various action programmes. All the industrial robots in stamping, mechanical processing, forge and foundry work, and in other auxiliary “manual” operations as well as in loading and unloading that have been widely introduced belong to this generation. They will continue to be the main type of robot.

Adaptive robots, or robots of the second generation, are being developed along with them. Where they differ is that they possess the most elementary senses in their manipulators – tactile (sense and touch), power (reaction to the magnitude of the work effort), locating (reaction to the distance to the object and the speed of approaching it), and light (reaction to the object located within a beam of light), and subsequently microprocess the information.

The third generation – the intellectual robots – possesses far richer means for sensing (including sight), for processing information with a view and carrying out a decision. It enables us to say that the robot possess “artificial intellect”.

Many of the robots in use today do jobs that are especially difficult for human workers. These are the types of jobs that require great strength or pose danger. For example, robots are particularly useful in the auto-manufacturing industry where parts of automobiles must be welded together. As mechanical supermen, robots may do anything from moving heavy components between workstations on a factory floor to carrying bags of cement.

Spray painting is another task suited to robots because robots do not need to breathe. Unlike human painters, they are unaffected by the poisonous fumes. Third in the list of useful jobs for robots is the assembly of electronic parts. Robots shine at installing chips in printed circuit boards because of a capability that robots have that people don't. Their automatic accuracy is particularly valuable in this kind of industry because locating and fixing mistakes is costly.

Robots that are fitted with video cameras and other sensing devices can detect heat, texture, size and sound. These robots are used in space projects, nuclear reactor stations, and underwater exploration research.

The use of industrial robots has produced a number of economic and social advantages. Among them are the improvement in productivity, greater humanization of working life, prevention of labour accidents, improvement of product quality and the development of new industries.

**1. Arrange these sentences in order to make a logical paragraph paying attention to the dates.**

1. In 1954, the American inventor George Devol began work that eventually led to the industrial robot as we know it today.
2. Between 1967 and 1969, researchers at the Stanford Research Institute in the United States developed a robot with wheels named Shakey.
3. Since then, many companies have entered the robotics market.
4. This was because it could only be controlled by a separate mainframe computer, which sent its commands to the robot through a radio channel.
5. All three helped Shakey to move freely and avoid obstacles.
6. Later devices were more successful – for example, a four-legged robot developed at the Tokyo Institute of Technology in 1980.
7. In 1983, a six-legged robot was developed by Odette Incorporated, for commercial production.
8. This system combined a human controller with automatic processing of information about the terrain, right down to the foot movements needed to ensure smooth movement.
9. Shakey was fitted with bump detectors, a sonar range finder, and a TV camera.
10. This was an extremely difficult job for the driver, and the machine regularly became unbalanced and fell over.
11. A battery-powered model, Odex 1, used a radio channel for leg control and a video link for conveying images.
12. Shakey was thought to be a failure.
13. This machine could walk over obstacles and lift loads several times its own weight.
14. The machine carried a human operator who had to control each of the four legs.
15. In 1967, the General Electric Corporation (GEC) had developed a four-wheeled machine for the US Department of Defense.
16. The next important step was the development of robots with legs.

**2. Answer the questions to the text.**

1. What is the origin of the word "robot"?
2. How did robots look like for many years?
3. Is there an exact definition of the word "robot"?
4. How many generations of industrial manipulators are there?
5. What generation do industrial robots which are used in stamping belong to?

**10. COMPUTER SYSTEM ARCHITECTURE**

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

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

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

### **Types of computers**

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

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

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

#### **1. Answer the questions to the text.**

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

#### **2. Answer the questions to the text.**

Функции ввода, хранения, обработки, управления и вывода информации; познакомиться; системные блоки; для начала; вспомогательные устройства; разработчик компьютерной системы; хорошая компьютерная подготовка; различные сферы применения; кор-

порация цифрового оборудования; прикладной программист; системный разработчик; главные устройства компьютерной системы; моделировать физические величины; измерение сигналов; в отличие от; иметь дело скорее с дискретными, чем непрерывными величинами; в режиме реального времени; коммерческие операции; цифровое вычисление; аналого-цифровые компьютеры; тенденция к установке систем управления; домашние приборы.

## **11. INFORMATION SECURITY**

A biological virus is a very small, simple organism that infects living cells, known as a host, by attaching itself to them and using them to reproduce itself. This often causes harm to the host cells.

Similarly, a computer virus is a very small program routine that infects a computer system and uses its resources to reproduce itself. It often does this by patching the operating system to enable it to detect program files, such as .COM or .EXE files. It then copies itself into those files. This sometimes causes harm to the host computer system.

When the user runs an infected program, it is loaded into memory carrying the virus. The virus uses a common programming technique to stay resident in memory. It can then use a reproduction routine to infect other programs. This process continues until the computer is switched off.

The virus may also contain a payload that remains dormant until a trigger event activates it, such as the user pressing a particular key. The payload can have a variety of forms. It might do something relatively harmless such as displaying a message on the monitor screen or it might do something more destructive such as deleting files on the hard disk.

When it infects a file, the virus replaces the first instruction in the host program with a command that changes the normal execution sequence. This type of command is known as a JUMP command and causes the virus instructions to be executed before the host program. The virus then returns control to the host program which then continues with its normal sequence of instructions and is executed in the normal way.

To be a virus, a program only needs to have a reproduction routine that enables it to infect other programs. Viruses can, however, have four main parts. A misdirection routine that enables it to hide itself; a reproduction routine that allows it to copy itself to other programs; a trigger that causes the payload to be activated at a particular time or when a particular event takes place; and a payload that may be a fairly harmless joke or may be very destructive. A program that has a payload but does not have a reproduction routine is known as a Trojan.

To prevent or limit the effects of disaster you should take security measures and protect hardware and software. If your work deals with the use of the Internet, you should implement network controls by installing firewalls to protect external and internal attacks. Another way of protection is using encrypted data including monitoring username and password use. Don't use common names or dictionary words in passwords. To protect from natural disasters install uninterruptible power supplies and surge protectors.

Periodically make full backups, which copy all files. If your files are very important, keep backups in separate locations, in fireproof containers, under lock and key. Virus protection programs are another way of feeling safe. Use only vendor-supplied software products that guarantee they are virus-free.

### **1 Answer the questions to the text.**

1. How does a biological virus infect living cells?
2. What is a computer virus?
3. What files does the virus copy itself into?
4. What technique is used by virus to become resident in memory?
5. How long does the process of infection continue?

## **2. Complete the sentences with appropriate words from the box.**

*Backups/ to be executed/ payload /reproduction/ host program /resources/  
hide /firewalls/ encrypted data/ security measures*

1. A computer virus infects a computer system and uses its ... to reproduce itself.
2. The virus contains a ... that remains dormant until the user presses a particular key.
3. The virus replaces the first instruction in the ... with a command that changes the normal execution sequence.
4. A JUMP command causes the virus instructions ... before the host program.
5. A ... routine is needed to infect other programs.
6. A misdirection routine enables a virus to ... itself.
7. To protect hardware and software you should take ....
8. Installing ... helps to withstand external and internal attacks.
9. To protect your work from stealing use ....
10. Copy all your files and keep your ... in separate locations under lock and key.

## **12. MODERN LIGHT-WAVE COMMUNICATION TECHNOLOGY**

Not long ago the concept of using light pulses instead of electrical signals to transmit information was only a concept. Today, light-wave communication systems are among the most sophisticated transmission systems in the telecommunication network. They are at once efficient, versatile and relatively inexpensive to install and maintain.

The efficiency of light-wave systems is perhaps their most renowned quality. They carry enormous amounts of information over long distances at very high speeds. Consider, for example, the speed and capacity of the Bell System's long distance light-wave system. Light pulsing through a single, hair-thin glass fiber in this system can transmit the entire contents of Webster's dictionary – more than 2700 pages – over thousands of miles in only six seconds.

Not less impressive than this tremendous speed and capacity is the versatility of light-wave systems. As they are digital systems they can transmit easily any of these types of information: voice signals, high-speed data signals, and television signals. Without undermining quality or efficiency a single system can accommodate thousands of telephone conversations, and alternately handle data or video signals. Finally light-wave systems are inexpensive to install and operate compared to their wire-and-cable counterparts. Moreover, they allow considerable savings.

The reasons for such savings stem from the technology of light-wave communication. Conventional telecommunication transmission is based on the conduction of electrons through metal (usually copper wires). Light-wave systems, however, substitute photons for electrons and glass fibers for copper. Since light guide cables are only a fraction of the diameter and weight of copper cables they are easy to handle and take up far less space. They can be installed in existing underground ducts sometimes right next to copper cables.

In addition, light-wave systems are immune to electromagnetic interference, and therefore require no protection from it. Also, light can travel much farther through light-wave cables without regeneration than can electrons through copper carrier systems. This is because the light encounters little resistance from the very pure glass fiber through which it travels. Light-wave systems require significantly fewer signal regenerators than do electrical digital carrier systems: typically one every ten miles instead of one every mile.

### **1. Read the following statements and decide if they are true (T) or false (F).**

1. Light-wave communication systems are not as efficient as conventional ones.
2. The versatility of light-wave systems is one of their most renowned qualities.
3. It is expensive to install and maintain light-wave systems.

4. In conventional systems electrons flow in a conductor.
5. Light guide cables take up too much space.
6. It is not possible to place light guide cables next to copper cables.
7. Electrical digital carrier systems require one regenerator every mile.

## 2. Answer the questions to the text.

1. Is the idea of using light pulses to transmit information new?
2. What are the qualities of light-wave communication systems?
3. What is their efficiency?
4. What is their versatility?
5. Are they cheaper to install and operate than their wire-and-cable counterparts?
6. Is there any difference between conventional and light-wave systems?

**Критерии оценки письменного перевода текста объемом 1600 знаков – max 30 баллов (I семестр) / 26 баллов (II семестр).**

<i>баллы I се- местр</i>	<i>баллы II се- местр</i>	<i>Коммуникативные и пере- водческие задачи</i>	<i>Языковые средства</i>
28-30	24-26	<i>Реализованы все коммуни- кативные задачи. Совер- шены все необходимые пе- реводческие трансфор- мации. Перевод звучит естественно. Перевод- ческие навыки проявлены в достаточной мере.</i>	<i>Связный текст, адекватное применение лек- сико-грамматических средств, их диапазон широк. Языковые ошибки не существенны. Адекватно переданы функционально- стилистические особенности текста. Пра- вильно передана структура предложения с точки зрения динамического синтакси- са(тема-рема). Сочетаемость слов, харак- терная для переводящего языка (ПЯ), не нарушается. Значения слов в контексте правильно поняты и для них найдены удач- ные эквиваленты.</i>
20-27	18-23	<i>Коммуникативные задачи реализованы, но текст производит впечатление неестественного для пере- водящего языка. Не все пе- реводческие трансформа- ции совершены правильно. Переводческие навыки не проявлены в достаточной мере.</i>	<i>Достаточно связный текст, восприятие которого может быть затруднено в от- дельных случаях из-за неправильно выбран- ного эквивалента, нарушения законов соче- таемости слов ПЯ или ошибочного понима- ния отдельных элементов исходного текста (ИТ). Функционально-стилистические осо- бенности текста в основном переданы.</i>
10-19	8-17	<i>Реализованы не все коммуникативные задачи или часть из них реализо- вана неадекватно. Пере- водческие навыки неустой- чивы.</i>	<i>В тексте есть грубые грамматические или лексические ошибки, искажающие смысл предложений (не более 3). Структурный и лексический диапазоны заметно ограничены, связность текста нарушена. Отсутствует попытка передать функционально- стилистические особенности текста.</i>
0-9	0-7	<i>Коммуникативные задачи в целом не реализо- ваны. Перевод представля-</i>	<i>Исходный текст студентом не понят. Не- правильно передана структура предложе- ний. Большое количество грубых лексико-</i>

		<p><i>ет собой бессмысленный текст. Отсутствуют навыки работы со словарём (неумение выбрать нужное по контексту слово). Переводческие навыки практически отсутствуют.</i></p>	<p><i>грамматических ошибок, нарушения сочетаемости в ПЯ. Функционально-стилистические особенности текста студентом не осознаются и грубо нарушаются.</i></p>
--	--	---	---

Министерство науки и высшего образования Российской Федерации  
Нижекамский химико-технологический институт (филиал) федерального государственного бюджетного образовательного учреждения  
высшего образования  
«Казанский национальный исследовательский технологический университет»

*Факультет Подготовительный  
Кафедра иностранных языков*

Направление подготовки 13.03.01 Теплоэнергетика и теплотехника  
Профиль подготовки «Энергообеспечение предприятий»

**Устные темы**  
**По дисциплине Б1.О.03 «Иностранный язык»**

1. About Myself.
2. The Country I live in.
3. The Republic I live in.
4. The Town I live in.
5. The English-Speaking Countries.
6. Science.

**Критерии оценивания монологического высказывания – max 40 баллов (I семестр)  
/ 15 баллов (II семестр).**

Решение коммуникативной задачи	Лексико-грамматическое оформление речи	Произносительная сторона речи	Баллы I семестр	Баллы II семестр
<b>Задание выполнено полностью:</b> цель общения достигнута; тема раскрыта в полном объеме (полностью раскрыты все аспекты, указанные в задании, даны развернутые ответы на 2 дополнительных вопроса); социокультурные знания использованы в соответствии с ситуацией общения.			31-40	11-15
<b>Задание выполнено:</b> цель общения достигнута, но тема раскрыта не в полном объеме (аспекты, указанные в задании, раскрыты не полностью; даны краткие ответы на 2 дополнительных вопроса); социокультурные знания в основном использованы в соответствии с ситуацией общения.	Используемый лексико-грамматический материал соответствует поставленной коммуникативной задаче. Демонстрируется разнообразный словарный запас и владение простыми и сложными грамматическими структурами, используются различные типы предложений. Лексико-грамматические ошибки практически отсутствуют (допускается не более 4 негрубых языковых		16-30	6-10



	ошибок, не затрудняющих понимание).			
<b>Задание выполнено частично:</b> цель общения достигнута не полностью; тема раскрыта в ограниченном объеме (не все аспекты, указанные в задании, раскрыты; дан ответ на один дополнительный вопрос или даны неточные ответы на 2 дополнительных вопроса); социокультурные знания мало использованы в соответствии с ситуацией общения.	Используемый лексико-грамматический материал в целом соответствует поставленной коммуникативной задаче. Наблюдается некоторое затруднение при подборе слов и неточности в их употреблении. Используются простые грамматические структуры. Допускаются лексико-грамматические ошибки (не более 6 языковых ошибок).	<b>Речь понятна:</b> практически все звуки в потоке речи произносятся правильно: не допускаются фонематические ошибки (меняющие значение высказывания); соблюдается правильный интонационный рисунок.	1-15	1-5
<b>Задание не выполнено:</b> цель общения не достигнута.	Недостаточный словарный запас, неправильное использование грамматических структур, многочисленные языковые ошибки не позволяют выполнить поставленную коммуникативную задачу.	<b>Речь почти не воспринимается на слух</b> из-за неправильного произношения многих звуков и многочисленных фонематических ошибок.	0	0

## Экзаменационные билеты

Министерство науки и высшего образования Российской Федерации  
Нижекамский химико-технологический институт (филиал) федерального государственного бюджетного образовательного учреждения  
высшего образования  
«Казанский национальный исследовательский технологический университет»

*Факультет Подготовительный*

*Кафедра иностранных языков*

Направление подготовки 13.03.01 Теплоэнергетика и теплотехника

Профиль подготовки «Энергообеспечение предприятий»

**Семестр 2**

УТВЕРЖДАЮ

Зав.кафедрой \_\_\_\_\_ Г.Р. Ганиева

« \_\_\_\_\_ » \_\_\_\_\_ 20 \_\_\_\_ г.

### Экзаменационный билет № 1 По дисциплине Иностранный язык

1. Сделайте полный письменный перевод текста на русский язык.
2. Составьте монологическое высказывание по теме About Myself.

Составитель \_\_\_\_\_ Васильева Аида Алеговна  
(подпись)

Министерство науки и высшего образования Российской Федерации  
Нижекамский химико-технологический институт (филиал) федерального государственного бюджетного образовательного учреждения  
высшего образования  
«Казанский национальный исследовательский технологический университет»

*Факультет Подготовительный*

*Кафедра иностранных языков*

Направление подготовки 13.03.01 Теплоэнергетика и теплотехника

Профиль подготовки «Энергообеспечение предприятий»

**Семестр 2**

УТВЕРЖДАЮ

Зав.кафедрой \_\_\_\_\_ Г.Р. Ганиева

« \_\_\_\_\_ » \_\_\_\_\_ 20 \_\_\_\_ г.

### Экзаменационный билет № 2 По дисциплине Иностранный язык

1. Сделайте полный письменный перевод текста на русский язык.
2. Составьте монологическое высказывание по теме The Country I Live in.

Составитель \_\_\_\_\_ Васильева Аида Алеговна  
(подпись)

Министерство науки и высшего образования Российской Федерации  
Нижекамский химико-технологический институт (филиал) федерального государственного бюджетного образовательного учреждения  
высшего образования  
«Казанский национальный исследовательский технологический университет»

*Факультет Подготовительный*  
*Кафедра иностранных языков*

Направление подготовки 13.03.01 Теплоэнергетика и теплотехника  
Профиль подготовки «Энергообеспечение предприятий»

**Семестр 2**

УТВЕРЖДАЮ  
Зав.кафедрой \_\_\_\_\_ Г.Р. Ганиева  
« \_\_\_\_ » \_\_\_\_\_ 20 \_\_\_\_ г.

**Экзаменационный билет № 3**  
**По дисциплине Иностранный язык**

1. Сделайте полный письменный перевод текста на русский язык.
2. Составьте монологическое высказывание по теме The Republic I live in.

Составитель \_\_\_\_\_ Васильева Аида Алеговна  
(подпись)

Министерство науки и высшего образования Российской Федерации  
Нижекамский химико-технологический институт (филиал) федерального государственного бюджетного образовательного учреждения  
высшего образования  
«Казанский национальный исследовательский технологический университет»

*Факультет Подготовительный*  
*Кафедра иностранных языков*

Направление подготовки 13.03.01 Теплоэнергетика и теплотехника  
Профиль подготовки «Энергообеспечение предприятий»

**Семестр 2**

УТВЕРЖДАЮ  
Зав.кафедрой \_\_\_\_\_ Г.Р. Ганиева  
« \_\_\_\_ » \_\_\_\_\_ 20 \_\_\_\_ г.

**Экзаменационный билет № 4**  
**По дисциплине Иностранный язык**

1. Сделайте полный письменный перевод текста на русский язык.
2. Составьте монологическое высказывание по теме The Town I Live in.

Составитель \_\_\_\_\_ Васильева Аида Алеговна  
(подпись)

Министерство науки и высшего образования Российской Федерации  
Нижекамский химико-технологический институт (филиал) федерального государственного бюджетного образовательного учреждения  
высшего образования  
«Казанский национальный исследовательский технологический университет»

*Факультет Подготовительный*  
*Кафедра иностранных языков*

Направление подготовки 13.03.01 Теплоэнергетика и теплотехника  
Профиль подготовки «Энергообеспечение предприятий»

**Семестр 2**

УТВЕРЖДАЮ  
Зав.кафедрой \_\_\_\_\_ Г.Р. Ганиева  
« \_\_\_\_ » \_\_\_\_\_ 20 \_\_\_\_ г.

**Экзаменационный билет № 5**  
**По дисциплине Иностранный язык**

1. Сделайте полный письменный перевод текста на русский язык.
2. Составьте монологическое высказывание по теме The English-Speaking Countries.

Составитель \_\_\_\_\_ Васильева Аида Алеговна  
(подпись)

Министерство науки и высшего образования Российской Федерации  
Нижекамский химико-технологический институт (филиал) федерального государственного бюджетного образовательного учреждения  
высшего образования  
«Казанский национальный исследовательский технологический университет»

*Факультет Подготовительный*  
*Кафедра иностранных языков*

Направление подготовки 13.03.01 Теплоэнергетика и теплотехника  
Профиль подготовки «Энергообеспечение предприятий»

**Семестр 2**

УТВЕРЖДАЮ  
Зав.кафедрой \_\_\_\_\_ Г.Р. Ганиева  
« \_\_\_\_ » \_\_\_\_\_ 20 \_\_\_\_ г.

**Экзаменационный билет № 6**  
**По дисциплине Иностранный язык**

1. Сделайте полный письменный перевод текста на русский язык.
2. Составьте монологическое высказывание по теме Science.

Составитель \_\_\_\_\_ Васильева Аида Алеговна  
(подпись)

Министерство науки и высшего образования Российской Федерации  
Нижекамский химико-технологический институт (филиал) федерального государственного бюджетного образовательного учреждения  
высшего образования  
«Казанский национальный исследовательский технологический университет»

*Факультет Подготовительный*  
*Кафедра иностранных языков*

Направление подготовки 13.03.01 Теплоэнергетика и теплотехника  
Профиль подготовки «Энергообеспечение предприятий»

**Семестр 2**

УТВЕРЖДАЮ  
Зав.кафедрой \_\_\_\_\_ Г.Р. Ганиева  
« \_\_\_\_ » \_\_\_\_\_ 20 \_\_\_\_ г.

**Экзаменационный билет № 7**  
**По дисциплине Иностранный язык**

1. Сделайте полный письменный перевод текста на русский язык и составьте аннотацию.
2. Составьте монологическое высказывание по теме My Future Profession.

Составитель \_\_\_\_\_ Васильева Аида Алеговна  
(подпись)

Министерство науки и высшего образования Российской Федерации  
Нижекамский химико-технологический институт (филиал) федерального государственного бюджетного образовательного учреждения  
высшего образования  
«Казанский национальный исследовательский технологический университет»

*Факультет Подготовительный*  
*Кафедра иностранных языков*

Направление подготовки 13.03.01 Теплоэнергетика и теплотехника  
Профиль подготовки «Энергообеспечение предприятий»

**Семестр 2**

УТВЕРЖДАЮ  
Зав.кафедрой \_\_\_\_\_ Г.Р. Ганиева  
« \_\_\_\_ » \_\_\_\_\_ 20 \_\_\_\_ г.

**Экзаменационный билет № 8**  
**По дисциплине Иностранный язык**

1. Сделайте полный письменный перевод текста на русский язык и составьте аннотацию.
2. Составьте монологическое высказывание по теме Pollution.

Составитель \_\_\_\_\_ Васильева Аида Алеговна

(подпись)

**Критерии оценки письменного перевода текста объёмом 1600 знаков – тах 20 баллов.**

<b>Баллы</b>	<b>Коммуникативные и переводческие задачи</b>	<b>Языковые средства</b>
18-20	Реализованы все коммуникативные задачи. Совершены все необходимые переводческие трансформации. Перевод звучит естественно. Переводческие навыки проявлены в достаточной мере.	Связный текст, адекватное применение лексико-грамматических средств, их диапазон широк. Языковые ошибки не существенны. Адекватно переданы функционально-стилистические особенности текста. Правильно передана структура предложения с точки зрения динамического синтаксиса (тема-рема). Сочетаемость слов, характерная для переводящего языка (ПЯ), не нарушается. Значения слов в контексте правильно поняты и для них найдены удачные эквиваленты.
9-17	Коммуникативные задачи реализованы, но текст производит впечатление неестественного для переводящего языка. Не все переводческие трансформации совершены правильно. Переводческие навыки не проявлены в достаточной мере.	Достаточно связный текст, восприятие которого может быть затруднено в отдельных случаях из-за неправильно выбранного эквивалента, нарушения законов сочетаемости слов ПЯ или ошибочного понимания отдельных элементов исходного текста (ИТ). Функционально-стилистические особенности текста в основном переданы.
1-8	Реализованы не все коммуникативные задачи или часть из них реализована неадекватно. Переводческие навыки неустойчивы.	В тексте есть грубые грамматические или лексические ошибки, искажающие смысл предложений (не более 3). Структурный и лексический диапазоны заметно ограничены, связность текста нарушена. Отсутствует попытка передать функционально-стилистические особенности текста.
0	Коммуникативные задачи в целом не реализованы. Перевод представляет собой бессмысленный текст. Отсутствуют навыки работы со словарём (неумение выбрать нужное по контексту слово). Переводческие навыки практически отсутствуют.	Исходный текст студентом не понят. Неправильно передана структура предложений. Большое количество грубых лексико-грамматических ошибок, нарушения сочетаемости в ПЯ. Функционально-стилистические особенности текста студентом не осознаются и грубо нарушаются.

**Критерии оценивания монологического высказывания – тах 20 баллов.**

<b>Решение коммуникативной задачи</b>	<b>Лексико-грамматическое оформление речи</b>	<b>Прозноносительная сторона речи</b>	<b>баллы</b>
<b>Задание выполнено полностью:</b> цель общения достигнута; тема раскрыта в полном объеме (полностью раскрыты все аспекты, указанные в задании, даны развернутые ответы на 2 дополнительных вопроса); социо-культурные знания использованы в соответствии с ситуацией общения.			20

<p><b>Задание выполнено:</b> цель общения достигнута, но тема раскрыта не в полном объеме (аспекты, указанные в задании, раскрыты не полностью; даны краткие ответы на 2 дополнительных вопроса); социокультурные знания в основном использованы в соответствии с ситуацией общения.</p>	<p>Используемый лексико-грамматический материал соответствует поставленной коммуникативной задаче. Демонстрируется разнообразный словарный запас и владение простыми и сложными грамматическими структурами, используются различные типы предложений. Лексико-грамматические ошибки практически отсутствуют (допускается не более 4 негрубых языковых ошибок, не затрудняющих понимание).</p>		15
<p><b>Задание выполнено частично:</b> цель общения достигнута не полностью; тема раскрыта в ограниченном объеме (не все аспекты, указанные в задании, раскрыты; дан ответ на один дополнительный вопрос или даны неточные ответы на 2 дополнительных вопроса); социокультурные знания мало использованы в соответствии с ситуацией общения.</p>	<p>Используемый лексико-грамматический материал в целом соответствует поставленной коммуникативной задаче. Наблюдается некоторое затруднение при подборе слов и неточности в их употреблении. Используются простые грамматические структуры. Допускаются лексико-грамматические ошибки (не более 6 языковых ошибок).</p>	<p><b>Речь понятна:</b> практически все звуки в потоке речи произносятся правильно; не допускаются фонематические ошибки (меняющие значение высказывания); соблюдается правильный интонационный рисунок.</p>	10
<p><b>Задание не выполнено:</b> цель общения не достигнута.</p>	<p>Недостаточный словарный запас, неправильное использование грамматических структур, многочисленные языковые ошибки не позволяют выполнить поставленную коммуникативную задачу.</p>	<p><b>Речь почти не воспринимается на слух</b> из-за неправильного произношения многих звуков и многочисленных фонематических ошибок.</p>	0

Министерство науки и высшего образования Российской Федерации  
Нижекамский химико-технологический институт (филиал) федерального государственного бюджетного образовательного учреждения  
высшего образования  
«Казанский национальный исследовательский технологический университет»

*Факультет Подготовительный*  
*Кафедра иностранных языков*  
Направление подготовки 13.03.01 Теплоэнергетика и теплотехника  
Профиль подготовки «Энергообеспечение предприятий»

**Комплект заданий для контрольной работы**  
**По дисциплине Иностранный язык**

**Вариант I.**

**Задание 1. Текст по специальности.**

**I. Прочитайте текст.**

1. Shortage of energy is major world problem and experts predict that the present rate of increase in energy use could exhaust the supply of fuels in the twenty-first century. What the world needs is a source of perpetual energy.

2. Potentially, we have a source of perpetual energy shining down on us. It's the sun. On clear day in the tropics, the intensity of solar energy can be more than a kilowatt per square meter at mid-day. That amount of energy falling on an area of sixty-four square kilometers is about as much as the whole of the British electricity generating system produces.

3. There is no charge for the energy that flows so freely from the sun.

4. Unfortunately its collection and storage can be both difficult and expensive. Some form of storage is necessary because the sun's rays do not reach us on cloudy days or at night. None the less, solar energy is now an economic and practicable solution and is widely used in many countries.

5. It is possible to convert solar energy directly to electricity by the use of photoelectric cells but for most practicable purposes this is too expensive a way to produce electricity. Today's solar energy systems are of two main types, based on the flat plate collector and the focusing collector. The flat plate collector is simpler and cheaper. In its simplest form, the sun's rays fall onto a panel.

Pipes carrying water are embedded in the panel. The sun heats the water, which is then available for use. Modern flat plate collectors are carefully designed to absorb the maximum possible amount of energy and to prevent heat loss to the surroundings. They are mainly used for the provision of domestic hot water. They are commercially available and are in use in many countries including Australia, Japan, Cyprus, Brazil and Israel.

6. Focusing systems enable a much higher proportion of the sun's energy to be trapped and also produce much higher temperatures. Temperatures up to 4,000°C have been reached in the solar-powered Odeillo furnace in the Pyrenees. The principle has been known for along time, Archimedes used it in 212 B.C. when he used focusing mirrors to set fire to the Roman fleet.

**Задание 2. Задания по тексту.**

**II. Переведите письменно текст на русский язык.**

**III. Придумайте и напишите по-английски заголовок к тексту.**

**IV. Просмотрите текст еще раз и ответьте на вопросы, используя информацию**



**из текста.**

1. Modern flat plate collectors are used mainly for:  
a) the storage of energy      b) a conventional use      c) a domestic use
2. Focusing systems have been known for a long time and have been used by:  
a) Japan scientists      b) The British electricity generating system  
c) Archimedes in 212 B.C.
3. The use of photoelectric cells is:  
a) too difficult to produce electricity  
b) undesirable to produce electricity  
c) too expensive to produce electricity

**V. Ответьте на вопрос:**

What source of energy does the world need in the near future?

**Задание 3. Грамматические задания.**

**VI. Перепишите следующие предложения, выбрав правильную форму глагола. Переведите предложения на русский язык.**

1. After that invention many telegraph companies (established / were established) in America, Europe and Asia.
2. Telegrams (are sent / send) instantly to far-away corners of the world.
3. Don't go inside that house. It (is repairing / is being repaired) now.
4. My health (has been improved / has improved) by sticking to a diet.
5. How many languages (speak / are spoken) in Canada?

**VII. Перепишите, подчеркните форму страдательного залога и переведите предложения на русский язык, обращая внимание на особенности употребления пассивного залога в английском языке.**

1. Faraday's works on electro-magnetism were followed by many pioneers in the field of electricity.
2. That event was commented upon in many newspapers.
3. Morse was given the idea to perfect the telegraph and its code during his trip to Europe.
4. These books are needed by all our students.
5. This subject will be dealt with in the next chapter.

**VIII. Перефразируйте, употребив пассивную форму сказуемого (исполнителя действия можно не указывать, если в этом нет необходимости), и переведите новые предложения.**

**Модель:**

*We test each piece of equipment very carefully*

*Each piece of equipment is tested very carefully. –*

1. Benjamin Franklin published his first idea about electricity in 1752.
2. He connected a pencil to an electric wire.
3. By 1861 Americans had set up a lot of telegraph companies.
4. Each time companies had to raise more and more money to lay a cable at the bottom of the Atlantic Ocean.
5. Nowadays people can send news and business information instantly to almost every part of the world.

**IX. Выберите правильный вариант и в скобках обозначьте форму времени и залога глагола-сказуемого:**

- 1) Japan has a large number of volcanoes, sixty-seven of which \_\_\_\_\_ active.  
a) consider      c) were considered  
b) considered      d) are considered
- 2) A seat belt \_\_\_\_\_ even if you are sitting in the back seat.  
a) must wear      c) must be worn



What scientific discoveries of Ernest Rutherford have you known about?

**Задание 3. Грамматические задания.**

**VI. Перепишите следующие предложения, выбрав правильную форму глагола. Переведите предложения на русский язык.**

1. Do you know what this table (make / is made) of?
2. The first telegraph line (built / was built) in America in 1844.
3. This town is changing all the time. Many of the old buildings (are being pulled down / are pulling down).
4. Some American programmes (show / are shown) on our television.
5. Oh dear! The vase (has broken / has been broken) into lots of small pieces.

**VII. Перепишите, подчеркните форму страдательного залога и переведите предложения на русский язык, обращая внимание на особенности употребления пассивного залога в английском языке.**

1. The telegram was followed by a letter.
2. Samuel Morse is often credited with the invention of the telegraph.
3. In 1843 Morse was paid by Congress to build the first telegraph Line in the USA.
4. The letter will be answered tomorrow.
5. Children are taught foreign languages at school.

**VIII. Перефразируйте, употребив пассивную форму сказуемого (исполнителя действия можно не указывать, если в этом нет необходимости), и переведите новые предложения.**

**Модель:**

*We test each piece of equipment very carefully*

*Each piece of equipment is tested very carefully. -*

*Samuel Morse didn't actually invent the telegraph.*

1. Usually people credit Morse with the invention of the telegraph.
2. By 1838 Morse had developed his code.
3. He also introduced the daguerreotype, an early form of photography.
4. Samuel Morse perfected the telegraph after the twelve years of effort.

**IX. Выберите правильный вариант и в скобках обозначьте форму времени и залога глагола-сказуемого:**

- 1) An experiment\_\_\_\_\_next week on Monday.  
a) will be made                      c) is made  
b) will make                          d) is being made
- 2)The article\_\_\_\_\_already discussed.  
a) is being                              c) has been  
b) has                                      d) was
- 3) The key\_\_\_\_\_for everywhere but it\_\_\_\_\_  
a) was looked, hasn't found  
b) has been looked, didn't find  
c) is looked, hasn't been found  
d) has been looked, hasn't been found
- 4) The work\_\_\_\_\_yet.  
a) hasn't been finished              c) hasn't finished  
b) wasn't finished                      d) didn't finish
- 5) The bridge\_\_\_\_\_by tomorrow morning.  
a) will have been reconstructed  
b) is being reconstructed  
c) will be reconstructed  
d) was reconstructed

### **Критерии оценивания выполнения контрольной работы:**

- 1) полнота и правильность ответа;
- 2) степень осознанности, понимания изученного;
- 3) языковое оформление ответа.

До 15-27 баллов ставится, если:

1) студент полно излагает материал, дает правильное определение основных понятий;

2) обнаруживает понимание материала, может обосновать свои суждения, применить знания на практике, привести необходимые примеры не только из учебника, но и самостоятельно составленные;

3) излагает материал последовательно и правильно с точки зрения норм литературного языка.

До 10-15 баллов – студент дает ответ, удовлетворяющий тем же требованиям, что и для отметки «5», но допускает 1–2 ошибки, которые сам же исправляет, и 1–2 недочета в последовательности и языковом оформлении излагаемого.

До 5-10 баллов – студент обнаруживает знание и понимание основных положений данной темы, но:

1) излагает материал неполно и допускает неточности в определении понятий или формулировке правил;

2) не умеет достаточно глубоко и доказательно обосновать свои суждения и привести свои примеры;

3) излагает материал непоследовательно и допускает ошибки в языковом оформлении излагаемого.

До 0-5 баллов ставится, если студент обнаруживает незнание большей части соответствующего вопроса, допускает ошибки в формулировке определений и правил, искажающие их смысл, беспорядочно и неуверенно излагает материал. Оценка «2» отмечает такие недостатки в подготовке, которые являются серьезным препятствием к успешному овладению последующим материалом.

Министерство науки и высшего образования Российской Федерации  
Нижекамский химико-технологический институт (филиал) федерального государственного бюджетного образовательного учреждения  
высшего образования  
«Казанский национальный исследовательский технологический университет»

*Факультет Подготовительный*  
*Кафедра иностранных языков*  
Направление подготовки 13.03.01 Теплоэнергетика и теплотехника  
Профиль подготовки «Энергообеспечение предприятий»

**Комплект заданий для итоговой контрольной работы**  
**По дисциплине Иностранный язык**

**Вариант I.**

**1).Прочитайте текст, переведите его письменно.**

*MECHANICAL ENGINEERING*  
*AS A FUTURE PROFESSION*

*Engineering as said in the English-English dictionary is:*

1. The practical application of scientific knowledge in the design, building and control of machines, roads, bridges, electrical apparatus, chemicals;
2. The work, science or profession of an engineer.

The primary types of engineering are chemical, civil, electrical, industrial, and mechanical.

We will study thoroughly mechanical engineering. Mechanical engineering is the application of physical principles to the creation of useful devices, objects and machines. Mechanical engineers use principles such as heat, force, and the conservation of mass and energy to analyze static and dynamic physical systems, in contributing to the design of things such as automobiles, aircraft, and other vehicles, heating and cooling systems, household appliances, industrial equipment and machinery, weapons systems, etc. Fundamental subjects of mechanical engineering include: dynamics, statics, strength of materials, hydraulics, kinematics, and applied thermodynamics. Mechanical engineers should understand and be able to apply concepts from the chemistry and electrical engineering fields.

Engineers in this field design, test, build, and operate machinery of all types; they also work on a variety of manufactured goods and certain kinds of structures. The field is divided into machinery, mechanisms, materials, hydraulics, and pneumatics; and heat as applied to engines, work and energy, heating, ventilating, and air conditioning. The mechanical engineer, therefore, must be trained in mechanics, hydraulics, and thermodynamics and must know such subjects as metallurgy and machine design. Some mechanical engineers specialize in particular types of machines such as pumps or steam turbines. A mechanical engineer designs not only the machines that make products but the products themselves, and must design for both economy and efficiency. A typical example of modern mechanical engineering is the design of a car or an agricultural machine.

One of the subtypes of mechanical engineering is automotive engineering.

The automobile was invented in the late 1800's and did not come prominence until the early 20th century. Its basic configuration was determined and mass-production methods were established.

It becomes available to a society. The automobile vastly expanded most people's mobility horizons. It enabled profound changes in most aspects of modern life. New roads were built to support the automobile. But as there are many advantages so disadvantages of the car invention also exist. It includes air pollution and car accidents. But all this fostered new engineering solutions to improve the quality of the human condition.

**2). Найдите из текста английские эквиваленты следующим словосочетаниям:**

- a) сельскохозяйственная машина
- b) применение научных знаний
- c) создание полезных приборов
- d) основные дисциплины
- e) промышленные изделия
- f) паровые турбины
- g) загрязнение воздуха
- h) электрические приборы
- i) система подогрева и охлаждения
- j) промышленное оборудование
- k) серийное производство
- l) дорожно-транспортное происшествие

**3). Дополните предложения словами подходящими по смыслу:**

*Operate\ use\ specialize\ design\ divided\ work\ study*

- 1. We will.. .thoroughly mechanical engineering.
- 2. Mechanical engineers.. .principles such as heat, force.
- 3. Engineers in this field..., and... machinery of all types.
- 4. They also.. .on a variety of manufactured goods.
- 5. The field is...into machinery, mechanisms, materials, hydraulics.
- 6. Some of them.. .in particular types of machines.

**4). Ответьте на вопросы:**

- 1. What is engineering?
- 2. What types of engineering do you know?
- 3. Why do mechanical engineers use such principles as heat, force, and the conservation of mass and energy?
- 4. Are there any disadvantages of the car invention?

**5). Поставьте глагол-сказуемое в нужной форме (Present, Past, Future Simple)**

- 1. He (not/to work) at a plant, he (to work) in a construction company.
- 2. You (to see) the last news program yesterday?
- 3. If he (to help) us, we (to finish) our project ahead of time.
- 4. When you (to come) home tomorrow?
- 5. He usually (to go) to bed very early because he (to take) an early bus to town.
- 6. I (to apply) a new method for my research work last year.
- 7. They (to build) the Eiffel Tower in 1899.
- 8. Water (to boil) at 100 C.
- 9. Next year some new houses (to appear) in our street.
- 10. Yesterday it (to take) me 30 minutes to get to the centre of the town.

**6). Употребите правильную форму глагола в условных предложениях:**

- 1. I (interpret) ... for you at the conference tomorrow if I (be) ... not already scheduled to work at the UN. I have a friend who (do) ... it for you, if she (be, not) ... busy.
- 2. If I (have) enough money, I (backpack) around Europe. But, unfortunately, I am broke.
- 3. If I (have)

enough money in my twenties, I (backpack) around Europe. But, unfortunately, I was broke. 4. If the price of this tour to GB (come) down, more people will buy it.

**7). Переведите на английский язык, учитывая три типа условных предложений.:**

1. Если бы он не ел так много, он бы не умер так рано. 2. Она пожалеет, если сделаете это. 3. Мы бы не опоздали, если бы наша машина не сломалась. 4. Если бы она носила контактные линзы, она была бы симпатичней. 5. Если бы не дети, они бы уже давно разошлись. 6. Если бы я был на вашем месте, я бы так не говорил.

**8). Из нескольких вариантов (1, 2, 3, 4) выберите единственно правильный.**

**1. If I had some spare time I ... Spanish.**

1. would learn 2. learn  
3. will learn 4. have learnt

**2. If I had known when your birthday was, I ... you a present.**

1. bought 2. would buy  
3. will buy 4. would have bought

**3. What will you do if your computer ... ?**

1. won't work 2. don't work  
3. doesn't work 4. wasn't working

**4. It would be useful for you if you ... this task a second time.**

1. would do 2. did  
3. had done 4. do

**5. I ... turn down their offer if they asked me.**

1. won't 2. wouldn't  
3. don't 4. wouldn't have

**9. Переведите предложение на русский язык и задайте пять основных типов вопросов к нему.**

The robot manipulates a tool to perform a process on the work part.

## **Вариант II.**

**1). Прочитайте текст, переведите его письменно.**

### ***AUTOMOTIVE ENGINEERING***

Automotive engineering is a branch of Vehicle engineering. It incorporates elements of mechanical, electrical, electronic, software and safety engineering as applied to the design, manufacture and operation of automobiles, buses and trucks and engineering subsystems.

Automotive engineers are involved in almost every aspect of designing cars and trucks. Broadly speaking automotive engineers are separated into three main streams: product engineering, development engineering and manufacturing engineering.

- Product engineer (also called design engineer), that would design components/systems (i.e brake engineer and battery engineer).

- Development engineer, that engineers the attributes of the automobile.

- Manufacturing engineer determines how to make it.

A Development Engineer is a job function within Automotive Engineering, in which the development engineer has the responsibility for coordinating delivery of the engineering attributes of a complete automobile (bus, car, truck, etc.).

The Development Engineer is also responsible for organizing automobile level testing, validation, and certification. Components and systems are designed and tested individually by the Product Engineer. The final evaluation though, has to be conducted at the automobile level to evaluate system to system interactions. As an example, the audio system (radio) needs to be

evaluated at the automobile level. Interaction with other electronic components can cause interference.

The design of modern cars is typically handled by a large team of designers and engineers from many different disciplines. As part of the product development effort the team of designers will work closely with teams of design engineers responsible for all aspects of the vehicle. These engineering teams include: chassis, body and trim, powertrain, electrical and production. The design team under the leadership of the design director will typically comprise of an exterior designer, an interior designer (usually referred to as stylists), and a color and materials designer. A few other designers will be involved in detail design of both exterior and interior.

Specialists in automobile industry deal with designing and manufacturing cars, so they should know that the production of the automobile comprises the following phases:

- 1) Designing,
- 2) Working out the technology of manufacturing processes,
- 3) Laboratory tests,
- 4) Road tests,
- 5) Mass production (manufacturing).

Why is it necessary to know all these facts? It is important to know them as before the automobile (car or truck) is put into mass production, it should be properly designed and the automobile must meet up-to-date requirements. What are these requirements? The automobile must have high efficiency, long service life, driving safety, ease of maintenance and pleasant appearance.

**2. Соедините первую часть предложения со второй:**

1. Components and systems
  2. Other designers
  3. Automotive engineering
  4. Automotive engineers
  5. The design of modern
- 
- a) will be involved in detail design of both exterior and interior
  - b) are involved in designing cars and truck
  - c) is typically handled by a large team of designers.
  - d) are designed and tested by the Product Engineer.
  - e) is a branch of Vehicle engineering.

**3. Сопоставьте слова с их определениями:**

1. Manufacturing engineer
  2. Product engineer
  3. Development engineer
- 
- a) is responsible for organizing automobile testing, certification.
  - b) determines how to make the automobile.
  - c) is involved in automobile designing testing.

**4. Ответьте на вопросы по тексту:**

1. What three main streams are automotive engineers separated into?
2. What does automotive engineering incorporate?
3. Are manufacturing engineers responsible for organising automobile level testing and certification?
4. What is typically handled by a large team of designers and engineers from many different disciplines?

**5). Поставьте глагол-сказуемое в нужной форме (Present, Past, Future Simple)**

1. She (not/ to teach) English at school.
2. You (to meet) him yesterday?
3. The firm (to buy) new computers next month.



4. The Dean (to ask) many questions at the lecture last week.
5. Where you (to go) next summer?
6. They (to use) new scientific data for their last experiment.
7. When the concert (to be over) all the people (to leave) the hall.
8. Every year students (to take part) in scientific research.
9. The first computer (to appear) in the 1960-s.
10. If the weather (to be) fine, we (to go) to the village.

**6). Употребите правильную форму глагола в условных предложениях:**

1. I (interpret) ... for you at the conference tomorrow if I (be) ... not already scheduled to work at the UN. I have a friend who (do) ... it for you, if she (be, not) ... busy. 2. If I (have) enough money, I (backpack) around Europe. But, unfortunately, I am broke. 3. If I (have) enough money in my twenties, I (backpack) around Europe. But, unfortunately, I was broke. 4. If the price of this tour to GB (come) down, more people will buy it.

**7). Переведите на английский язык, учитывая три типа условных предложений:**

1. Я помогу вам, если приду рано. 2. Если бы он был осторожнее, он бы не попал в дорожное происшествие. 3. Я дам вам мой номер телефона на тот случай, если вы захотите мне позвонить. 4. Если бы она принялась учить английский еще в детстве, она бы знала его сейчас очень хорошо. 5. Если бы он не ел так много, он бы не умер так рано.

**8). Из нескольких вариантов (1, 2, 3, 4) выберите единственно правильный.**

- 1. If I had known you had a mobile phone I... you.**
  1. would contact 2. had contacted
  3. contacted 4. would have contacted
- 2. If she could cook as well as you, she ... a restaurant.**
  1. would open 2. will open
  3. had opened 4. opened
- 3. If it ... I'll come and meet you in the car.**
  1. rain 2. will rain
  3. rains 4. would rain
- 4. It ... wonderful if he had said that. But he didn't.**
  1. was 2. will be
  3. would be 4. would have been
- 5. We'll go to the theatre to-night if we ... the tickets.**
  1. get 2. will get
  3. are getting 4. would get

**9). Переведите предложение на русский язык и задайте пять основных типов вопросов к нему.**

Machine loading and unloading operations utilize a robot to load and unload parts.

**Критерии оценивания выполнения итоговой контрольной работы:**

- 1) полнота и правильность ответа;
  - 2) степень осознанности, понимания изученного;
  - 3) языковое оформление ответа.
- До 10-12 баллов ставится, если:
- 1) студент полно излагает материал, дает правильное определение основных понятий;
  - 2) обнаруживает понимание материала, может обосновать свои суждения, применить знания на практике, привести необходимые примеры не только из учебника, но и самостоятельно составленные;

3) излагает материал последовательно и правильно с точки зрения норм литературного языка.

До 8-10 баллов – студент дает ответ, удовлетворяющий тем же требованиям, что и для отметки «5», но допускает 1–2 ошибки, которые сам же исправляет, и 1–2 недочета в последовательности и языковом оформлении излагаемого.

До 5-8 баллов – студент обнаруживает знание и понимание основных положений данной темы, но:

1) излагает материал неполно и допускает неточности в определении понятий или формулировке правил;

2) не умеет достаточно глубоко и доказательно обосновать свои суждения и привести свои примеры;

3) излагает материал непоследовательно и допускает ошибки в языковом оформлении излагаемого.

До 0-5 баллов ставится, если студент обнаруживает незнание большей части соответствующего вопроса, допускает ошибки в формулировке определений и правил, искажающие их смысл, беспорядочно и неуверенно излагает материал. Оценка «2» отмечает такие недостатки в подготовке, которые являются серьезным препятствием к успешному овладению последующим материалом.