

**Приложение ПССЗ/ПКРС по специальности 27.02.07 Управление качеством продукции, процессов и услуг (по отраслям) 2023 уч.г.: Комплект контрольно-оценочных средств учебной дисциплины СГ.02 Иностранный язык в профессиональной деятельности**

**МИНИСТЕРСТВО ОБРАЗОВАНИЯ БЕЛГОРОДСКОЙ ОБЛАСТИ  
ОБЛАСТНОЕ ГОСУДАРСТВЕННОЕ АВТОНОМНОЕ ПРОФЕССИОНАЛЬНОЕ  
ОБРАЗОВАТЕЛЬНОЕ УЧРЕЖДЕНИЕ  
«АЛЕКСЕЕВСКИЙ КОЛЛЕДЖ»**

**Комплект  
контрольно-оценочных средств**

по учебной дисциплине

**СГ.02 Иностранный язык в профессиональной деятельности**

для специальности

**27.02.07 Управление качеством продукции, процессов и услуг  
(по отраслям)**

Алексеевка – 2023

Комплект контрольно-оценочных средств разработан на основе Федерального государственного образовательного стандарта среднего профессионального образования по специальности 27.02.07 Управление качеством продукции, процессов и услуг (по отраслям)

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## **1. Паспорт комплекта оценочных средств**

### **1.1 Область применения комплекта оценочных средств**

Контрольно-оценочные средства (КОС) предназначены для контроля и оценки образовательных достижений обучающихся, освоивших программу учебной дисциплины СГ.02 Иностранный язык в профессиональной деятельности. КОС включают контрольные материалы для проведения текущей и промежуточной аттестации в форме дифференцированного зачета.

КОС разработан на основании рабочей программы учебной дисциплины СГ.02 Иностранный язык в профессиональной деятельности.

### **1.2. Цели и задачи учебной дисциплины – требования к результатам освоения учебной дисциплины:**

В результате освоения учебной дисциплины обучающийся должен уметь:

У1- строить простые высказывания о себе и о своей профессиональной деятельности;

У2- взаимодействовать в коллективе, принимать участие в диалогах на общие и профессиональные темы;

У3- применять различные формы и виды устной и письменной коммуникации на иностранном языке при межличностном и межкультурном взаимодействии;

У4- понимать общий смысл четко произнесенных высказываний на общие и базовые профессиональные темы;

У5- понимать тексты на базовые профессиональные темы;

У6- составлять простые связные сообщения на общие или интересующие профессиональные темы;

У7- общаться (устно и письменно) на иностранном языке на профессиональные и повседневные темы;

У8- переводить иностранные тексты профессиональной направленности (со словарем);

У9- самостоятельно совершенствовать устную и письменную речь, пополнять словарный запас.

В результате освоения учебной дисциплины обучающийся должен знать:

З1- лексический и грамматический минимум, относящийся к описанию предметов, средств и процессов профессиональной деятельности;

З2- лексический и грамматический минимум, необходимый для чтения и перевода текстов профессиональной направленности (со словарем);

З3- общеупотребительные глаголы (общая и профессиональная лексика); правила чтения текстов профессиональной направленности;

З4- правила построения простых и сложных предложений на профессиональные темы;

правила речевого этикета и социокультурные нормы общения на иностранном языке;

35- формы и виды устной и письменной коммуникации на иностранном языке при межличностном и межкультурном взаимодействии

Профессиональные (ПК) и общие (ОК) компетенции, которые актуализируются при изучении учебной дисциплины:

ОК 2. Использовать современные средства поиска, анализа и интерпретации информации и информационные технологии для выполнения задач профессиональной деятельности

ОК 4. Эффективно взаимодействовать и работать в коллективе и команде

ОК 5. Осуществлять устную и письменную коммуникацию на государственном языке Российской Федерации с учетом особенностей социального и культурного контекста

ОК 9. Пользоваться профессиональной документацией на государственном и иностранном языках.

ПК 1.1 Оценивать соответствие качества поступающих в организацию сырья, материалов, полуфабрикатов, комплектующих изделий техническим регламентам, стандартам (техническим условиям), условиям поставок и договоров.

ПК 1.2 Определять техническое состояние оборудования, оснастки, инструмента, средств измерений и сроки проведения их поверки на соответствие требованиям нормативных документов и технических условий (по отраслям).

ПК 1.5 Оценивать качество изготовления и сборки изделий различной сложности (по отраслям)

ПК 2.1 Подготавливать технические документы (заключения) о соответствии качества поступающих в организацию сырья, материалов, полуфабрикатов, комплектующих изделий техническим регламентам, стандартам и техническим условиям.

ПК 2.3 Оформлять документацию на подтверждение соответствия продукции (работ, услуг) в соответствии с установленными требованиями

ПК 2.4 Разрабатывать стандарты организации, технические условия для их учета при производстве, хранении, транспортировке и при утилизации продукции

ПК 3.1 Систематизировать данные о качестве продукции (услуг), причинах возникновения дефектов (брака)

ПК 3.3 Осуществлять анализ рекламаций и претензий к качеству продукции (работ, услуг)

**Планируемые личностные результаты освоения рабочей программы:**

ЛР 4. Проявляющий и демонстрирующий уважение к людям труда, осознающий ценность собственного труда. Стремящийся к формированию в сетевой среде лично и профессионально конструктивного «цифрового следа»

ЛР 7. Осознающий приоритетную ценность личности человека; уважающий собственную и чужую уникальность в различных ситуациях, во всех формах и видах деятельности.

ЛР 8. Проявляющий и демонстрирующий уважение к представителям различных этнокультурных, социальных, конфессиональных и иных групп. Сопричастный к сохранению, преумножению и трансляции культурных традиций и ценностей многонационального российского государства.

ЛР 10. Заботящийся о защите окружающей среды, собственной и чужой безопасности, в том числе цифровой.

ЛР 11. Проявляющий уважение к эстетическим ценностям, обладающий основами эстетической культуры

### 1.3 Результаты освоения учебного предмета, подлежащие проверке

Наименование тем	Коды личностных результатов (ЛР), формированию которых способствует элемент программы	Средства контроля и оценки результатов обучения в рамках текущей аттестации (номер задания)	Средства контроля и оценки результатов обучения в рамках промежуточной аттестации (номер задания/контрольного вопроса/ экзаменационного билета)
<b>Раздел 1.</b> Роль иностранного языка в профессиональной деятельности	<i>ЛР4, ЛР7, ЛР8, ЛР11</i>	Текст №1 Текст №2 Текст №3	Практическое задание №1
<b>Раздел 2.</b> Значение иностранного языка в освоении профессии	<i>ЛР4, ЛР7, ЛР10</i>	Текст №4 Текст №5	Практическое задание №2
<b>Раздел 3</b> Основы делового общения	<i>ЛР4, ЛР7, ЛР8</i>	Задание №6	Практическое задание №3
<b>Раздел 4</b> Рынок труда, трудоустройство и карьера	<i>ЛР4, ЛР8</i>	Задание №7	Практическое задание №4
<b>Раздел 5.</b> Научно-технический прогресс: открытия, которые потрясли мир	<i>ЛР4, ЛР7, ЛР8</i>	Текст №8	Практическое задание №5
<b>Раздел 6.</b> Метрология как научная дисциплина	<i>ЛР4, ЛР7</i>	Текст №9	Практическое задание №6
<b>Раздел 7.</b> Измерения	<i>ЛР4, ЛР7, ЛР10</i>	Текст №10	Практическое задание №7
<b>Раздел 8.</b> Стандарты, стандартизация	<i>ЛР4, ЛР7, ЛР10</i>	Текст №11	Практическое задание №8
<b>Раздел 9.</b> Сертификация	<i>ЛР4, ЛР7, ЛР10</i>	Текст №12	Практическое задание №9
<b>Раздел 10.</b> Измерительные приборы	<i>ЛР1, ЛР4, ЛР7</i>	Текст №13	Практическое задание №10

## 2. Комплект оценочных средств для текущей аттестации

### 2.1. Текстовые задания

- прочтите текст
- сделайте перевод текста
- выполните задания к тексту.

#### Текст №1

##### Great Britain

The full name of the country the United Kingdom of Great Britain and Northern Ireland. The United Kingdom is situated on the British Isles. The British Isles consist of two large islands, Great Britain and Ireland, and a great number of small islands. Their total area is over 314 000 sq. km. The British Isles are separated from the European continent by the North Sea and the English Channel. The western coast of Great Britain is washed by the Atlantic Ocean and the Irish Sea. Northern Ireland occupies one third of the island of Ireland. It borders on the Irish Republic in the south. The island of Great Britain consists of three main parts: England (the southern and middle part of the island), Wales (a mountainous peninsula in the West) and Scotland (the northern part of the island).

There are no high mountains in Great Britain. In the north the Cheviots separate England from Scotland, the Pennines stretch down North England along its middle, the Cambrian mountains occupy the greater part of Wales and the Highlands of Scotland are the tallest of the British mountains. There is very little flat country except in the region known as East Anglia. Most of the rivers flow into the North Sea. The Thames is the deepest and the longest of the British rivers. Some of the British greatest ports are situated in the estuaries of the Thames, Mersey, Trent, T Clyde and Bristol Avon. Great Britain is not very rich in mineral resources, it has some deposits of coal and iron ore and vast deposits of oil and gas that were discovered in the North Sea.

The warm currents of the Atlantic Ocean influence the climate of Great Britain. Winters are not severely cold and. summers are rarely hot. The population of the United Kingdom is over 58 million people. The main nationalities are: English, Welsh, Scottish and Irish. In Great Britain there are a lot of immigrants from former British Asian and African colonies. Great Britain is a highly industrialized country. New industries have been developed in the last three decades. The main industrial centres are London, Birmingham, Manchester, Leeds, Liverpool, Glasgow and Bristol. The capital of the country is London. The United Kingdom is a parliamentary monarchy.

#### Answer the questions:

1. Where is the United Kingdom situated?
2. What islands do the British Isles consist of?
3. What ocean and seas are the British Isles washed by?
4. How many parts does the Island of Great Britain consist of and what are they called?
5. What country does Northern Ireland border on?
6. What city is the capital of the U. K.?
7. What kind of state is Great Britain?

#### Текст №2

##### Holidays in Great Britain

There are eight public, or bank holidays in Great Britain, that is, days when banks and offices are closed. They are: Christmas Day, Boxing Day, New Year's Day, Good Friday,

Easter Monday, Mayday, Spring Bank Holiday and Late Summer Bank Holiday. The observance of these days is no longer limited to banks. All the public holidays, except Christmas Day and Boxing Day observed on the 25 and 26 of December respectively, do not fall on the same day each year. Most of these holidays are of religious origin, though for the greater part of the population they have long lost their religious significance and are simply days on which people relax and make merry. Certain customs and traditions are associated with most bank holidays. The reason is that many of them are part of holiday seasons, like Easter and Christmas seasons. Besides public holidays, there are celebrations, festivals, and simply days, on which certain traditions are observed, but unless they fall on a Sunday, there are ordinary working days.

February, 14 is St. Valentine's Day. It is a day for choosing sweethearts and exchanging love tokens. Generations of young people have considered St. Valentine to be the friend and patron of lovers and have sent gifts and hand-made valentines to their sweethearts. A valentine was a colourful card with a short verse composed by the sender. Now thousands of ready-made valentines are sent through the post every year.

Pancake Day is a popular name for Shrove Tuesday — the last day of enjoyment before the fasting of Lent. On this day Christians confessed their sins to a priest. Many people still traditionally eat pancakes. One of the main events of this day is the pancake race at Olney. The competitors in the race are local housewives who make their pancakes and run from the village square to the church.

The fourth Sunday in Lent is Mothering Sunday — a day of small family reunions. On this day absent sons and daughters return to the homes and make gifts to their mothers.

April, 1 is April Fool's Day — the day when practical jokes are played. Any person may be made in April Fool between midnight and noon. Children are, of course, very keen supporters of the tradition. You can step in a basin of water, or receive a letter with a deceiving message. If you are young and innocent, you can be sent to fetch some non-existing thing, like pigeon's milk.

Another popular British tradition is Halloween, celebrated on October, 31, the eve of All Saints' Day. Halloween's customs dated back to a time, when people believed in devils, witches and ghosts. They thought that they could do all kinds of damage to property. Some people tried to ward off the witches by painting magic signs or nailing a horseshoe. Today the day is marked by costume-balls or fancy-dress parties. On the night of Halloween children or grown-ups visit houses and ask the residents if they want 'trick' or 'treat'. If the people in the house give children a 'treat' (money or sweets), then the children will not play trick on them. Another Halloween custom is to scrape out a pumpkin, cutting eyes, nose and mouth in its side and lighting a candle inside. This is made to scare the friends.

**Task:**

**Translate the following sentences into English.**

1. Во время официальных праздников все банки, почтовые отделения и большая часть офисов и магазинов закрыты, однако соблюдение этих праздников больше не ограничивается банками.

2. Многие из них имеют религиозное происхождение, но давно потеряли свое религиозное значение, и сейчас это просто дни, в которые люди отдыхают и веселятся.

3. В день Св. Валентина, друга и покровителя всех влюбленных, люди обмениваются символами любви.

4. Раньше люди посылали свои возлюбленным самодельные валентинки, которые содержали стихи, написанные отправителем, сейчас посылают готовые валентинки.

5. Во вторник на масленой неделе обычно христиане исповедовались в своих грехах священнику и ели блины, сейчас одно из основных событий дня — бег с блинами в Олни.



6. Апрельский день смеха — это день, когда вас разыгрывают, и эта традиция с энтузиазмом поддерживается детьми.

7. Традиции Хэллоуина, кануна Дня всех святых, восходят ко времени, когда люди верили в чертей, привидения и ведьм и пытались отпугнуть их, рисуя магические значки или прибывая подкову.

8. Сейчас этот день отмечается костюмированными балами и маскарадами, люди также выскребают тыквы, чтобы пугать друзей.

### **Текст №3**

#### **British Traditions and Customs**

British nation is considered to be the most conservative in Europe. It is not a secret that every nation and every country has its own customs and traditions. In Great Britain people attach greater importance to traditions and customs than in other European countries. Englishmen are proud of their traditions and carefully keep them up. The best examples are their queen, money system, their weights and measures.

There are many customs and some of them are very old. There is, for example, the Marble Championship, where the British Champion is crowned; he wins a silver cup known among folk dancers as Morris Dancing. Morris Dancing is an event where people, worn in beautiful clothes with ribbons and bells, dance with handkerchiefs or big sticks in their hands, while traditional music- sounds.

Another example is the Boat Race, which takes place on the river Thames, often on Easter Sunday. A boat with a team from Oxford University and one with a team from Cambridge University hold a race.

British people think that the Grand National horse race is the most exciting horse race in the world. It takes place near Liverpool every year. Sometimes it happens the same day as the Boat Race takes place, sometimes a week later. Amateur riders as well as professional jockeys can participate. It is a very famous event.

There are many celebrations in May, especially in the countryside.

Halloween is a day on which many children dress up in unusual costumes. In fact, this holiday has a Celtic origin. The day was originally called All Halloween's Eve, because it happens on October 31, the eve of all Saint's Day. The name was later shortened to Halloween. The Celts celebrated the coming of New Year on that day.

Another tradition is the holiday called Bonfire Night.

On November 5, 1605, a man called Guy Fawkes planned to blow up the Houses of Parliament where the king James 1st was to open Parliament on that day. But Guy Fawkes was unable to realize his plan and was caught and later, hanged. The British still remember that Guy Fawkes' Night. It is another name for this holiday. This day one can see children with figures, made of sacks and straw and dressed in old clothes. On November 5th, children put their figures on the bonfire, burn them, and light their fireworks.

In the end of the year, there is the most famous New Year celebration. In London, many people go to Trafalgar Square on New Year's Eve. There is singing and dancing at 12 o'clock on December 31st.

A popular Scottish event is the Edinburgh Festival of music and drama, which takes place every year. A truly Welsh event is the Eisteddfod, a national festival of traditional poetry and music, with a competition for the best new poem in Welsh.

If we look at English weights and measures, we can be convinced that the British are very conservative people. They do not use the internationally accepted measurements. They have conserved their old measures. There are nine essential measures. For general use, the smallest weight is one ounce, then 16 ounce is equal to a pound. Fourteen pounds is one stone.

The English always give people's weight in pounds and stones. Liquids they measure in pints, quarts and gallons. There are two pints in a quart and four quarts or eight pints are in one gallon. For length, they have inches» foot, yards and miles.

If we have always been used to the metric system therefore the English monetary system could be found rather difficult for us. They have a pound sterling, which is divided into twenty shillings, half-crown is cost two shillings and sixpence, shilling is worth twelve pennies and one penny could be changed by two halfpennies.

**Questions:**

1. What nation is considered to be the most conservative in Europe?
2. What are the best examples of their conservatism?
3. What are the most popular English traditions?
4. What is the original name of Halloween?
5. What is a popular Scottish event?
6. What is the Eisteddfod?
7. What peculiarities of the English monetary system do you know?

**Текст №4**

**Education in Russia**

Every citizen of our country has the right to education. This right is guaranteed by the Constitution. It is not only a right but a duty, too. Every boy or girl must get secondary education. They go to school at the age of six or seven and must stay there until they are 14-17 years old. At school pupils study academic subjects, such as Russian, "Literature, Mathematics, History, Biology, a foreign language and others.

After finishing 9 forms of a secondary school young people can continue their education in the 10-th and the 11-th form. They can also go to a vocational or technical school, where they study academic subjects and receive a profession. A college gives general knowledge in academic subjects and a profound knowledge in one or several subjects.

After finishing a secondary, vocational, technical school or a college, young people can start working or enter an institute or a university. Institutes and universities train specialists in different fields. A course at an institute or a university usually takes 5 years. Many universities have evening and extramural departments. They give their students an opportunity to study without leaving their jobs. Institutes and universities usually have graduate courses which give candidate or doctoral degrees.

Education in this country is free at most schools. There are some private primary and secondary schools where pupils have to pay for their studies. Students of institutes and universities get scholarships. At many institutes and universities there are also departments where .students have to pay for their education.

**Answer the questions:**

1. What does the phrase «the right to education» mean?
2. Why is education a duty, too?
3. What subjects do pupils study at school?
4. What can young people do after finishing the 9th form?
5. Do children and people in this country have to pay for education?

**Текст №5**

**Education in the USA**

Education in the United States of America is compulsory for children from the age of 6 till 16 (or 18). It involves 12 years of schooling. A school year starts at the end of August or at the

beginning of September and ends in late June or early July. The whole school year is divided into three terms/trimesters or four quarters. American students have winter, spring and summer holidays which last 2 or 3 weeks and 6 or 8 weeks, respectively. The length of the school year varies among the states as well as the day length. Students go to school 5 days a week.

The American education system consists of 3 basic components: elementary, secondary and higher education. There is also such a notion as preschool education. At the age of 4 or 5 children just get acquainted with the formal education in a nursery school. The preschool education programme aims to prepare children for elementary school through playing and help them to acquire the experience of association. It lasts for one year. Then they go to the first grade (or grade 1).

Elementary education starts when pupils are 6 years old. The programme of studies in the elementary school includes the following subjects: English, Arithmetic, Geography, History of the USA, Natural sciences, Physical Training, Singing, Drawing, wood or metal work. The education is mostly concentrated on the basic skills (speaking, reading, writing and arithmetic). Sometimes children also learn some foreign languages, general history and such new subjects as drug and sex education. The main goal of elementary education is the general intellectual, social and physical development of a pupil from 5 to 12 or 15 years old.

Secondary education begins when children move on to high or secondary school in the ninth grade, where they continue their studies until the twelfth grade. The secondary school curriculum is built around specific subjects rather than general skills. Although there is always a number of basic subjects in the curriculum: English, Mathematics, Science, Social Studies and Physical Education, the students have an opportunity to learn some elective subjects, which are not necessary for everybody. After the first two years of education they can select subjects according to their professional interests. The electives are to be connected with the students' future work or further education at university or college. Every high school has a special teacher — a guidance counselor who helps the students to choose these elective subjects. Moreover, he helps them with some social problems, too. The elective courses are different in various schools.

Members of each grade in high school have special names: students in the ninth grade are called freshmen, tenth graders are called sophomores, eleventh graders are juniors and as for twelfth graders, they are seniors.

After graduating from high schools the majority of the Americans go on studying at higher education establishments. In universities they have to study for four years to get a bachelor's degree. In order to get a master's degree they must study two years more and, besides, be engaged in a research work.

### **Answer the questions:**

1. At what age do American students start and finish their compulsory education?
2. How are the school years called in the United States?
3. The length of the school year varies among the states, doesn't it?
4. What are the basic components of American education?
5. Do all children have to attend a nursery school?
6. What is the main aim of elementary education?

### **Task №6**

#### **Напишите электронное письмо «Встреча с работодателем»**

A1

You have received an e-mail from the company. They want to meet with you in a cafe next Thursday.

Write an e-mail to Mr Jarris, the manager. In your e-mail write

- 1) how you look (tall/ short, hair, eyes, etc.)
  - 2) what you will wear (clothes)
  - 3) what personal qualities you have to work in their company (active, clever, etc.)
- You need to write 45-60 words.

A2 и выше

You have received an e-mail from the company. They want to meet with you in a cafe next Thursday.

Write an e-mail to Mr Jarris, the manager. In your e-mail thank the company and write

- 1) how you look (tall/ short, hair, eyes, etc.)
- 2) what you will wear (clothes)
- 3) what personal qualities you have to work in their company (active, clever, etc.)

You need to write 80-110 words.

### **Task №7**

#### **Ролевая игра « Собеседование. Устройство на работу»**

#### **Role-play.**

**You are going to hold an interview for a job as an trainee accountant .Decide if you are the applicant or the interviewing board and get ready for the interview.**

#### **Sample dialogues**

##### **Dialogue 1 Job Interview**

-Good morning, Miss Jones. So you applied for a job in our team. Am I right?

-Yes, I did. I sent my resume for a position of a restaurant manager.

-That`s good. I`d like to know a bit more about you. Probably you could tell us about your education first.

-Well, I left school at 17 and then for the next five years I studied at Kazan Federal University. I graduated the Department of economics and was qualified as a manager of enterprise. And after that I did a one-year computer course.

-Well. Your education sounds great, Miss Jones. And have you got any experience? Have you worked before?

-Certainly. First I worked as a manager at children`s clothes shop. I stayed there for four years and then I moved on to my present company. They offered me a job of a manager in a big cafe.

-That`s very interesting. Why aren`t you happy with your present job, Miss Jones? Why are you going to leave them?

-Well. The salary isn`t so bad, I must admit. But the work schedule isn`t convenient for me. And I often do a lot of overtime there. Besides you have an excellent reputation and I hope to have more opportunity and growth potential in your company.

-I see. Do you mind business trips? And are you fluent in Italian or German?

-Oh, foreign languages are my favorites. We did Italian and German at the University and I use them when I travel.

-Very good. Can you tell me about your good points then?

-Well... I start my work on time. I learn rather quickly. I am friendly and I am able to work under pressure in a busy company.

-OK. That`s enough I think. Well, Miss Jones. Thank you very much. I am pleased to talk to you and we shall inform you about the result of our interview in a few days. Good-bye.

##### **Dialogue 2**

- Briefly, tell me about yourself, please.

- So...I am 22, a fifth year student at teacher training college studying English and Spanish. I was born near Suzdal and came to Vladimir to attend college. I live in a student hostel and would like to work part-time to gain experience and to earn money so that I can rent a room or a small flat.
- What do you know about our company?
- The whole world has heard of Happy Pizza when I have visited your restaurants I have been very impressed by the service your staff provide and the quality of the food. Also, I have been impressed by the way your staff seem to work well together and are polite to both the customers and to each other.
- Why have you applied for this job?
- As I said earlier, I would like to move out of the hostel. Also, I would like to become part of the team and to get experience of working in an organization like yours.
- Can you give me the name of someone we can contact?
- This is the name, address and telephone number of my senior lecturer in English who has known me for three years and has already agreed to speak to you.
- Is there anything else you would like to tell us?
- Well, let me think... Simply that I am healthy and keen to work for your company.
- Goodbye, we will contact you a bit later

## **Текст №8**

### **I. Read the text**

#### ***Britain's Science and Scientists***

British contribution to science includes many great discoveries linked with famous names – Sir Isaac Newton (theory of gravitation), Robert Boyle (“the father of modern chemistry”), Michael Faraday (whose discoveries gave rise to the electrical industry), and Henry Cavendish (properties of hydrogen). In the last century – J.J. Thomson, Lord Rutherford and Sir James Chadwick (basic work on nuclear science), Gowland Hopkins (the existence of vitamins), Sir William Bragg (X-ray analysis), and many others.

Medicine owes much to such pioneers as William Harvey (circulation of the blood), Edward Jenner (vaccination), Joseph Lister (antiseptics), Sir Ronald Ross (who proved the relation between malaria and mosquitoes). British advances in medicine include penicillin and other antibiotics, heart-lung machines, a new antiviral agent, interferon of great potential value, and many other important developments in the treatment of disease.

The first pedal cycle was built by a Scotsman, Kirkpatrick Macmillan, in 1839. Today Britain is the world's biggest exporter of cycles.

The first thermionic valve was patented in England in 1904 by Sir Ambrose Fleming, who could have foreseen few of the consequences of his invention – radio broadcasting, television, radar navigational aids and communications satellites.

The British discovery of the multicavity magnetron in 1941 marked the beginning of modern radar, which played a major part in the second World War. Today over half the world's shipping carries British radar equipment.

Since 1945 there have been over 30 British scientists who have received international recognition for their work by gaining Nobel awards. There are more than 200 learned scientific societies in Britain.

#### ***Isaac Newton (1642–1727)***

Newton, one of the greatest scientists of all time, was born on the 25th of December 1642 at the little village of Woolsthorpe in Lincolnshire, not far from the old university town of Cambridge. His father died before Newton was born. When Isaac was a schoolboy, he liked to make things with his own hands and once he made a primitive wooden clock. When he was fifteen, Newton's family wanted him to become a farmer like his father. He did his best but was

a poor farmer and his uncle sent him back to school. At the age of 18 he was sent to Cambridge where he studied mathematics and took his degree at the age of 23, in 1665. Some years later he was appointed professor to the chair of physics and mathematics at Cambridge.

In 1665 the great plague broke out in England and the University was closed. Newton went home for a period of eighteen months. During that time, between the ages of 22 and 24 Newton made his great discoveries – the discovery of the differential calculus of the nature of white light and the laws that govern the forces of gravitation.

In 1699 Newton was elected a foreign associate of the Academy of Sciences. He died at the age of 84 at Kensington on March 20, 1727.

#### ***James Maxwell (1831–1879)***

James Clerk Maxwell, a remarkable physicist and mathematician of the 19th century, was born on November 13, 1831 in Edinburgh.

At school he became interested in mathematics and at the age of 14 he won a mathematical medal. While studying at the University of Edinburgh Maxwell attended meetings of the Royal Society, read a great number of books, made chemical, magnetic and other experiments. Two of his papers were published in the “Transactions”. In 1850 Maxwell began his studies at Cambridge University. He took part in social and intellectual activities at the University. In 1854 he got the degree and for two years he stayed at Trinity College where he studied, lectured and did some experiments on optics.

In 1856 he became a professor of natural philosophy at Marischal College, Aberdeen, and in 1860 professor of physics and astronomy at King’s College in London. He remained there for five years, which were the most productive for Maxwell. He continued his work on gases and the theory of electricity.

One of Maxwell’s greatest works was “On the Physical Lines of Force”, which was published in London. After 20 years of thought and experiments he published his famous “Treatise on Electricity and Magnetism”.

In 1871 Maxwell was appointed professor of experimental physics in Cambridge. In 1876 his classic “Matter and Motion” appeared. Maxwell died on November 5, 1879.

His contribution to the kinetic theory of gases, colour vision, the theory of heat, dynamics, and the mathematical theory of electricity are the best monuments to his great genius. His work also influenced the development of telephones and colour photography.

#### ***Ernest Rutherford (1871–1937)***

Ernest Rutherford, a great English physicist, was born in 1871 in New Zealand. His grandparents were among the first English settlers on the Island.

When he was five, he was sent to primary school. Later at the University he revealed great abilities in physics. Rutherford was deeply interested in physical experiments. His work on “The Magnetisation of Iron by Highfrequency Discharges” was a great success. In 1895 he came to Cambridge and began to work at the laboratory led by professor Thomson. Rutherford was among those scientists who started to work with X-rays after their discovery. Together with professor Thomson he found that the X-rays have positive and negative ions in the gas. For three years Rutherford worked at a research chair of physics at Montreal University. He studied the structure of the atom and the processes of radioactivity. In 1899 he discovered that radioactive radiation consists of three particles, which he called Alpha, Beta and Gamma rays.

The scientists all over the world were impressed by Rutherford’s discoveries, and he was invited to many Universities both in the USA and Europe to lecture. Later he worked at Manchester University where he continued to study the structure of the atom.

In 1902 he explained the process of radioactive decay, in which one chemical element can turn into another. For this work Rutherford received the Nobel Prize in 1908. He was made a

life peer in 1931. In 1937 Rutherford died. His research work is of great importance and is continued by many scientists all over the world.

**Exercise 1. What are these British scientists famous for? Match the names of the scientists to their discoveries and inventions.**

- |                          |   |
|--------------------------|---|
| 1. Isaac Newton          | a) Alpha, Beta and Gamma rays             |
| 2. Henry Cavendish       | b) the first thermionic valve             |
| 3. Gowland Hopkins       | c) mathematical theory of electricity     |
| 4. Ernest Rutherford     | d) relation between malaria and moquitoes |
| 5. William Bragg         | e) the basic law of electromagnetism      |
| 6. William Harvey        | f) vaccination                            |
| 7. Joseph Lister         | g) a pedal cycle                          |
| 8. Edward Jenner         | h) theory of heat                         |
| 9. Ronald Ross           | i) theory of gravitation                  |
| 10. Kirkpatric Macmillan | j) anticeptics                            |
| 11. Ambrose Fleming      | k) kinetic theory of gases                |
| 12. James Maxwell        | l) existence of bitamins                  |
| 13. Michael Faraday      | m) properties of hydrogen                 |
- n) circulation of blood  
o) X-ray analysis

**Exercise 2. Provide laconic and precise answers to the following questions.**

1. What name(s) of Britain's scientist(s) mentioned in the first text have you heard about before?
2. What was British contribution to the development of medicine?
3. What event marked the beginning of modern radar?
4. At what age did Newton make his great discoveries? What were they?
5. What were Maxwell's greatest works?
6. What can be considered as the best monuments to Maxwell's great genius?
7. In what branch of physics did Rutherford work? What were his discoveries?
8. For what work did he receive the Nobel Prize?

### **Task №9**

#### **I. Read the text**

##### **Measurement Systems**

##### **Metric Units of Length**

**A.** The *meter* (m) is the basic unit of length or distance in the metric system.

*The door of your classroom is about 1 meter wide.*

**B.** Three metric units used to

measure smaller lengths or

distances are the *millimeter*

(mm), the *centimeter* (cm),

the *decimeter* (dm). 1,000 mm

= 100 cm = 10 dm = 1 m

ure larger lengths or

distances. Sometimes, the dekameter (dam) and hectometer (hm) are used.  $1 \text{ km} = 10 \text{ hm} = 100 \text{ dam} = 1,000 \text{ m}$

### TRY THESE

**Name some lengths or distances you would measure using:**

1. meters 2. millimeters 3. centimeters 4. kilometers

### SKILLS PRACTICE

**Use m, mm, cm, dm, or km to complete.**

1. The height of a room is about 3 \_\_\_\_\_ .
2. The length of a sofa is about 20 \_\_\_\_\_ .
3. The width of this book is about 20 \_\_\_\_\_ .
4. The width of a sharp pencil point is about 2 \_\_\_\_\_ .
5. The distance from Chicago to Dallas is about 1,500 \_\_\_\_\_ .

**Match. Select the answer that seems reasonable.** 6. length of a football field

7. thickness of a quarter

8. length of a pencil

9. width of a chair

10. height of a basketball player

11. distance you can walk in 10 minutes

a. 2 m

b. 1 km

c. 100 m

d. 2 mm

e. 4 dm

f. 15 cm

### Текст №10

**Read the text to find out what measuring devices exist.**

#### A Measuring Device

A measuring device is a mechanism designed to find the dimensions, capacity or amount of something. Measuring devices can be divided into groups in several ways. For example, they can be divided according to the nature of things they are designed to measure; or they can be divided according to the type of measuring unit each device uses, or in any number of other ways.

If they are grouped according to the nature of the things they are designed to measure, we might have some devices for measuring liquids, some for measuring ground-up solids (such as flour, gravel, chemicals in powdered form etc.) and some for measuring requiring linear measurement (such as measurement for dimensions). Many other possible types of things and their devices could be included: the three are mentioned only as a sampler.

If we group measuring devices according to the type of measuring unit each uses, we might have the following types: linear units (feet, centimeters, inches, miles, metres, etc), weight units (grams, ounces, pounds etc.) and the units used for more specialized things, such as electric current and temperature (amps, degrees centigrade etc.).

Some examples of devices that use different types of measuring units are rulers, calipers and measuring tapes – all of which measure linear dimensions: balances – the most common being spring and beam balances – for measuring weight; and containers such as graduated glass cylinders found in chemistry laboratories, and the measuring cups and measuring spoons found in kitchens – all used for measuring volume.



A common example of a measuring instrument (device) used to measure more specialized things is a thermometer, which measures temperature. Typical household thermometers are those containing alcohol or mercury. These instruments measure temperature quite differently from the way a ruler measures linear dimensions, for example. The ruler measures directly, the thermometer actually measures the expansion or contraction of the liquid inside it, and this is shown on a scale that is marked in units representing temperature.

**Exercise 3. Say if the following statements are true or false according to the information in the text.**

1. Measuring devices can be divided into several groups according to the nature of things they are designed to measure or to the type of measuring unit each device uses.
2. In one group measuring devices according to the nature of the things they are designed to measure we might have devices for measuring liquids and ground up solids only.
3. Having grouped measuring devices according to the type of measuring units each uses we may have linear units, volumetric units, weight units and others.
4. Measuring cups and measuring spoons found in kitchens are used for measuring weight, while balances are used for measuring volume.
5. Typical household thermometers are those containing either alcohol or mercury.
6. Thermometers measure temperature the same way a ruler measures linear dimensions.

**Exercise 4. Choose the right continuation to the sentences.**

- |   |   |
|---|---|
| 1. Measuring devices  | a. measures directly.   |
| 2. Some examples of devices that use different types of measuring units | b. can be divided according to the nature of things they are designed to measure. |
| 3. A measuring device   | c. are rulers, calipers and measuring tapes.                                      |
| 4. A common example of a measuring device used to measure temperature   | d. those containing either alcohol or mercury.                                    |
| 5. Typical household thermometers are                                   | e. actually measures the expansion or contraction of the liquid inside it.        |
| 6. A thermometer  | f. is a thermometer.  |
| 7. The ruler  | g. is a mechanism designed to find the dimensions, capacity, amount of something. |

## **Текст №11**

### **WHAT IS METROLOGY?**

Metrology is the science of measurement. It should not be confused with "Meteorology", the science of weather and weather forecasting. Metrology includes units of measurement and their standards, measuring instruments and their field of application, and all theoretical and practical problems relating to measurement.

Measurements are essential to nearly all aspects of human activity ranging from production control, measurement of environmental quality, health and safety assessment, conformity assessment of products to consumer protection and fair trade assurance.

Metrology is classified in three main fields: Scientific Metrology, Industrial Metrology and Legal Metrology.

Scientific Metrology is that part of metrology which deals with problems common to all metrological questions irrespective of the quantity measured. It covers general theoretical and practical problems concerning units of measurement, including their realization and dissemination through scientific methods, the problems of errors and uncertainties in measurement and the problems of metrological properties of measuring instruments.

There are different specialist areas of metrology, for example:

- *Mass metrology* dealing with mass measurements;
- *Dimensional metrology* dealing with length and angle measurements;
- *Temperature metrology* dealing with temperature measurements;
- *Electrical metrology* dealing with electrical measurements;
- *Chemical metrology* dealing with measurements in chemistry.

Industrial metrology deals with measurements in production and quality control. It covers calibration procedures, calibration intervals, control of measurement processes and management of measuring instruments in industry to ensure that they are in a state of compliance with requirements for their intended use.

Legal metrology is that part of metrology which is subject to legal/regulatory control. It is defined in the *International Vocabulary of Legal Metrology* as that part of metrology relating to activities which result from statutory requirements and concern measurement, units of measurement, measuring instruments and methods of measurement and which are performed by competent bodies.

## **Текст №12**

### **Metrological traceability**

A core concept in metrology is metrological traceability, defined by the BIPM as «the property of the result of a measurement or the value of a standard whereby it can be related to stated references, usually national or international standards, through an unbroken chain of comparisons, all having stated uncertainties»). The level of traceability establishes the level of comparability of the measurement: whether the result of a measurement can be compared to the previous one, a measurement result a year ago, or to the result of a measurement performed anywhere else in the world.

Traceability is most often obtained by calibration, establishing the relation between the indication of a measuring instrument and the value of a measurement standard. These standards are usually coordinated by national metrological institutes: National Institute of Standards and Technology, National Physical Laboratory, UK, etc. Traceability is used to extend measurement from a method that works in one regime to a different method that works in a different regime. An example would be the measurement of the spacing of atomic planes in the same crystal specimen using both X-rays and an electron beam. Traceability also refers to the methodology used to calibrate various instruments by relating them back to a primary standard. Traceability, accuracy, precision, systematic bias, evaluation of measurement uncertainty are critical parts of a

quality management system. Mistakes can make measurements and counts incorrect. Even if there are no mistakes, nearly all measurements are still inexact. The term «error» is reserved for that inexactness, also called measurement uncertainty. Among the few exact measurements are:

– The absence of the quantity being measured, such as a voltmeter with its leads shorted together: the meter should read zero exactly.

– Measurement of an accepted constant under qualifying conditions, such as the triple point of pure water: the thermometer should read 273.16 Kelvin (0.01 degrees Celsius, 32.018 degrees Fahrenheit) when qualified equipment is used correctly.

– Self-checking ratio metric measurements, such as a potentiometer: the ratio in between steps is independently adjusted and verified to be beyond influential inexactness.

All other measurements either have to be checked to be sufficiently correct or left to chance. Metrology is the science that establishes the correctness of specific measurement situations. This is done by anticipating and allowing for both mistakes and error. The precise distinction between measurement error and mistakes is not settled and varies by country. Calibration is the process where metrology is applied to measurement equipment and processes to ensure conformity with a known standard of measurement, usually traceable to a national standards board.

**Ex. 2. Answer the questions**

1. What is metrological traceability ?
2. What does the level of comparability of the measurement mean?
3. What are the critical parts of management quality system ?
4. What is the term «error» reserved for ?
5. What organizations coordinate standards ?

**Ex. 3. Are these sentences true or false ?**

1. Traceability is most often obtained by evaluation.
2. Metrological traceability was defined by the UN.
3. Metrological traceability is a core concept in metrology.
4. All other measurements either have to be checked to be sufficiently correct or left to chance.
5. Errors can make measurements and counts incorrect.
6. The precise distinction between measurement error and mistakes has been already settled.
7. Calibration is a process where metrology is not applied to measurement equipment.

**Ex. 4. Fill the blanks using the following words: establishment, instrument, correctness, to achieve, calibration, term, standard, metrological, key**

Metrological traceability is a ... concept. This ... was introduced by the BIMP. Metrological traceability allows establishing the ... of the obtained measurement result and the correspondence of this result with the national ... The accuracy of the measurement result is by ... the comparability with the previous results obtained earlier. Traceability is obtained by ... Calibration means the ... of the relation between the indication of a measuring ... and the value of a measurement standard. These standards are coordinated by national ... institutes.

**Текст №13**

**What is standard?**

In the science of measurement, a standard is an object, system, or experiment that bears a defined relationship to a unit of measurement of a physical quantity. Standards are the fundamental reference for a system of weights and measures, against which all other measuring devices are compared. Historical standards for length, volume, and mass were defined by many

different authorities, which resulted in confusion and inaccuracy of measurements. Modern measurements are defined in relationship to internationally- standardized reference objects, which are used under carefully controlled laboratory conditions to define the units of length, mass, electrical potential, and other physical quantities.

There is a three-level hierarchy of physical measurement standards. At the top of the tree are the master standards – these are known as primary standards. Primary standards are made to the highest metrological quality and are the realization of their unit of measure. Historically, units of measure were generally defined with reference to unique artifacts which were the legal basis of units of measure. A continuing trend in metrology is to eliminate as many as possible of the artifact standards and instead define practical units of measure in terms of fundamental physical constants, as demonstrated by standardized technique. One advantage of elimination of artifact standards is that intercomparison of artifacts is no longer required. Another advantage would be that the loss or damage of the artifact standards would not disrupt the system of measures.

The next quality standard in the hierarchy is known as a secondary standard. Secondary standards are calibrated with reference to a primary standard.

The third level of standard, a standard which is periodically calibrated against a secondary standard, is known as a working standard. Working standards are used for the calibration of commercial and industrial measurement equipment.

#### **Primary reference standards**

Gauge blocks are used as a working standard to check the calibration of measurement tools such as micrometers.

An example of a primary standard is the international prototype kilogram (IPK) which is the master kilogram and the primary mass standard for the International System of Units (SI). The IPK is a one kilogram mass of a platinum-iridium alloy maintained by the International Bureau of Weights and Measures in France.

Another example is the unit of electrical potential, the volt. Formerly it was defined in terms of standard cell electrochemical batteries, which limited the stability and precision of the definition. Currently the volt is defined in terms of the output of a Josephson junction, which bears a direct relationship to fundamental physical constants.

In contrast, the reference standard for the meter is no longer defined by a physical object. In 1983, the standard meter was redefined as the distance which light travels in a vacuum during  $1/299,792,458$  of a second.

#### **Secondary reference standards**

Secondary reference standards are very close approximations of primary reference standards. For example, major national measuring laboratories such as the US's National Institute of Standards and Technology (NIST) will hold a national standard kilogram, which is periodically calibrated against the IPK.

#### **Working standards**

Although the SI definition of the «meter» is based on a laboratory procedure combining the speed of light and the duration of a second, a machine shop will have a physical working standard (gauge blocks for example) that is used for checking its measuring instruments. Working standards and certified reference materials used in commerce and industry have a traceable relationship to the secondary and primary standards.

#### **Ex. 2. Answer the following questions**

1. What is standard?
2. What types of standard do you know?
3. What is working standard?
4. What is the advantage of the elimination of artifacts?
5. What is IPK?

### **Ex. 3. Are these sentences true or false?**

1. Gauge blocks are used as a working standard to check the calibration of measurement tools such as micrometers.
2. The unit of magnetic potential is the volt.
3. Today the unit of electrical potential is determined in terms of standard cell electrochemical batteries.
4. In the science of measurement, a standard is an object, system, or experiment that bears a defined relationship to a unit of measurement of any quantity.
5. The main standards are primary standards.
6. There is a five-level hierarchy of physical measurement standards.
7. Secondary reference standards are values of primary reference standards.

**Ex. 4. Fill the blanks using the following word words:** to calibrate techniques constant, basis, national, types, reference, trend, measurement, replace,

There is a three ... of physical measurement standards The main standards are primary standards. Primary standards allow realizing units of measurements. Historically, units of measure were defined using unique artifacts which were the legal ... of units of measure. A continuing ... in metrology is these artifact standards and ... them with practical units of measure. These units will be connected with fundamental physical ... They will be defined using standardized ...

Secondary reference standards are very close approximations of primary ... standards. For example, major national measuring laboratories such as the US's National Institute of Standards and Technology (NIST) will hold a ... standard kilogram, which is periodically ... against the IPK. The third type of standard, a standard which is periodically calibrated against a secondary standard, is known as a working standard. Working standards are used for the calibration of commercial and industrial ... equipment.

## **3. Комплект оценочных средств для промежуточной аттестации**

### **3.1. Практические задания (ПЗ)**

#### **Практическое задание №1**

#### **CERTIFICATION IN RUSSIA**

#### **1. Check whether you know the meaning of the following words and expressions:**

*Expenses, to meet requirements, obligatory, compatibility, to launch, to fall under regulation, to confirm, expertise, to declare, malfunction, security, to undertake, to possess, to be equal, overseas markets, to win a niche, legislature bodies, to request .*

*Certification* is a series of actions, undertaken to confirm with the means of conformance certificates (specific documents) that a product meets certain standards or other requirements and regulations. Lots of foreign companies spend a lot of time and money to prove a customer that their products possess high quality standards. According to non-Russian sources, those expenses reach up to 1-2% of all the manufacturers' expenses. Sometimes, the expenses are equal to the cost of reaching the quality standards themselves. All the spending comes in place because certification is a very effective tool to develop trade, promote products on the national and overseas markets as well as to win a niche on them for quite a long period of time. All that gives ground to wide use of certification.

Certification was introduced to defend the market from the malfunction products. On the one hand, security, health and environmental issues make the legislature bodies rest responsibility for low quality products with the manufacturers, suppliers etc. On the other hand, those issues make the legislature bodies introduce the minimum of obligatory requirements to the

properties of the products offered to the market. The first group includes such law practices as the Russian law "On the protection of consumers' interests" or the EU law "On the responsibility for the products." Regulations, setting the minimum of obligatory requirements for products properties, can refer to the whole group of products or their subgroups, like the laws "On Toys", "Electromagnetic Compatibility" and others. The legislation puts limits on the use of products, falling under its regulation in part or as a whole. It is also said that in that case a product falls under the legislature regulation. If product properties in part or as a whole are not regulated by national laws, a product can be offered on the given market without any limits and it is said that a product does not fall under the legislature regulation.

For offering a product, which falls under the legislature regulation, one needs to obtain the confirmation that the product meets all legislature requirements. One of the forms of that kind of confirmation is certification, implemented by a third independent party (besides a manufacturer and a consumer, which are the other parties in the process). If a product does not fall under legislature regulation, it can be offered to the given market without limits and there is no need to confirm its properties.

In case there is no legislature regulation, suppliers can get their products certified by a third party at their own initiative, requesting the confirmation of certain properties. Suppliers can request the confirmation according to specific standards and technical requirements. Suppliers should have a clear vision of how they can profit from certification, for example, by launching an advertising campaign with an expertise from a third independent party.

Certification is needed for manufacturing and selling goods on the territory of the Russian Federation as well as for their customs clearance in all varieties and quantities. Certification confirms the quality characteristics declared by a manufacturer, makes export and import easier and gives goods additional competition advantages on the market.

**Exercise 2. Search the text for the following word combinations:**

Третья независимая сторона, соответствовать требованиям, подпадать под, разрешение таможни, рекламная кампания, дополнительные преимущества в конкуренции, с одной стороны, получить подтверждение, иметь четкое представление, поставщики, затраты достигают, эффективное средство.

**Exercise 3. Say whether the following statements are true or false.**

1. One should have the confirmation that a product meets necessary requirements.
2. Certification is used to protect customers and market from products of poor quality.
3. Customers spend a lot of time and money to prove that their products possess high quality standards.
4. Suppliers can profit from certification, for example, by launching an election campaign with an expertise from a third independent party.
5. The legislature bodies introduce the minimum of obligatory requirements to the quantity of the products offered to the market.
6. The quality characteristics declared by a manufacturer are checked by a third independent party.
7. Certification helps to promote goods on the domestic and international markets.
8. Sometimes expenses on an advertising campaign reach up to 1-2%.

**Exercise 4. Make the sentences complete.**

1. ... introduce the minimum of obligatory ... .
2. ... needed for manufacturing and selling ... .
3. On the other hand, ... .
4. ... technical requirements.
5. ... rest responsibility ... .
6. ... to confirm its properties.

7. Lots of foreign ... .  
 8. ... declared by a manufacturer ... .

**Exercise 5. Match the word to the correct definition.**

- |                  |   |
|------------------|---|
| 1. certification | a) power of seeing or imagining, looking ahead      |
| 2. confirmation  | b) public announcement in the press or TV           |
| 3. supply        | c) public place where people meet to buy and sell   |
| 4. advertisement | d) exchange of goods for money or other goods       |
| 5. competition   | e) the process of proving that the facts are true   |
| 6. trade         | f) a statement that shows that something is true    |
| 7. market        | g) stock or amount of something which is obtainable |
| 8. vision        | h) activity at which skill, knowledge is tested     |

**Exercise 6. Make up sentences.**

1. The voluntary/ significantly/ competitive/ certification/ raises/ of/ certain/ capacity/ a/ manufacturer.
2. Some/ even/ candidates/ require/ organizations/ to obtain/ in order/ certifications/ certain/ to perform/ functions.
3. The certificate/ accredited/ body/ authorized/ test reports/ by/ is given/ on the basis of/ first of all/ the.
4. Russian manufacturers/ easier/ valid in Russia/ in technical/ to fix and orientate/ regulation requirements/ are.
5. A certification/ a way/ to demonstrate/ in this area/ provides/ for professionals/ and expertise/ their knowledge.
6. The information/ on the official/ about/ may be/ web-site/ certification/ found.
7. Obtaining an industry/ boost/ potential/ can/ individuals'/ earning/ can/ standard.
8. Those who/ who is/ must/ typically/ have their work/ aren't certified/ checked/ by someone.

**Практическое задание №2**

**CERTIFICATION MARKS**

**1. Check whether you know the meaning of the following words and expressions:**

*Certification mark, to indicate, legal follow-up, legal evidence, legal assurance, to enable compliance, maintenance, test specimen, to fail an audit, stakeholder, end-user customer, to be eligible for, field installation, performance of services, technical issues, workaround, to offer goods, to render services.*

A certification mark on a commercial product indicates five things:

- The existence of a legal follow-up or product certification agreement

between the manufacturer of a product and an organization with national accreditation for both testing and certification

- Legal evidence that the product was successfully tested in accordance with a nationally accredited standard
- Legal assurance that the accredited certification organization has ensured that the item was successfully tested and is identical to that which is being offered for sale
- Legal assurance that the successful test has resulted in a certification listing, which is considered public information, which sets out the tolerances and conditions of use for the certified product, to enable compliance with the law through listing and approval use and compliance
- Legal assurance that the manufacturer is being regularly audited by the certification organization to ensure the maintenance of the original process standard that was employed in the manufacture of the test specimen that passed the test. If the manufacturer should fail an audit, all product that was certified, including labels of stock on hand, on construction sites, with end-user customers and on distributor store shelves, can be mandated by the certification organization in charge to be immediately removed, and can insist that all stakeholders be informed that the de-listed product certification is no longer eligible for use in field installations.

On the part of the certifier, the label itself is a type of trademark whereby the manufacturer uses the mark to indicate eligibility of the products for use in field installations in accordance with the requirements of the code, and/or the origin, material, mode of manufacture of products, mode of performance of services, quality, accuracy of other characteristics of products or services.

Certification marks differ from collective trade marks. The main difference is that collective trade marks may be used by particular members of the organization which owns them, while certification marks are the only evidence of the existence of follow-up agreements between manufacturers and nationally accredited testing and certification organizations. Certification organizations charge for the use of their labels and are thus always aware of exact production numbers. In this way, certification organizations can be seen to earn a commission from sales of products under their follow-up regimes. In return, the use of the certification marks enables the product sales in the first place.

Certification is often mistakenly referred to as an "approval", which is often not true. Organizations such as Underwriters Laboratories, and CSA International for instance, only "list", they do not approve anything except the use of the mark to show that a product has been certified. Thus, for instance a product certification mark for a fire door or for a spray fireproofing product does not signify its universal acceptance for use within a building. Approvals are up to the Authority Having Jurisdiction (AHJ), such as a municipal building inspector or fire prevention officer. Conversely, FM Global does use the term "Approvals" for its certification listings, which are intended for use of the products within buildings that are insured by FM Global. The German accreditor Deutsches Institut für Bautechnik (DIBt) issues "Approvals" for systems. All of these listed products must conform to listing and approval use and compliance.

For various reasons, usually relating to technical issues, certification marks are difficult to register, especially in relation to services. One practical workaround for trade mark owners is to register the mark as an ordinary trade mark in relation to quality control and similar services.

Certification marks can be owned by independent companies absolutely unrelated in ownership to the companies, offering goods or rendering services under the particular certification mark.

**Exercise 2. Say whether the following statements are true or false:**

1. Legal evidence that the product was successfully tested is one of the characteristics indicated by the certification mark.



2. Collective trade marks and certification marks are synonymous notions.
3. Certification is often the same as an "approval".
4. Certification marks are very easy to register.
5. Collective trade marks may be used by particular members of the organization which owns them.

**Exercise 3. For each word choose a group of its synonyms.**

1. *to indicate* means: a) cancel, delete, remove; b) signify, mean, denote; c) bring, carry, move.
2. *evidence* means: a) proof, testimony, witness; b) attorney, barrister, lawyer; c) acuteness, danger, importance.
3. *assurance* means: a) attitude, expression, outlook; b) appraisal, estimation, evaluation; c) affirmation, guarantee, promise.
4. *maintenance* means: a) border, edge, latitude; b) guide, handbook, instructions; c) repairs, running, support.
5. *eligible* means: a) acceptable, proper, qualified; b) illusory, indefinable, puzzling; c) flexible, supple, variable.

### Практическое задание №3

#### INSTRUMENTATION

**Exercise 1. Check whether you know the meaning of the following words and expressions:**

*Measurement, observation, valve, value, transmitter, density, viscosity, loop, pressure, frequency, solenoid, capacitance, relay, conductivity, to deal with, application, device, to manipulate, contrivance, to comprise, to provide, remote control, to be responsible for, to modify, ultimate aim.*

Instrumentation is the branch of engineering that deals with measurement and control. According to *ISA* or known as *Instrumentation and Systems Automation Society* formerly known as Instrument Society of America, the official definition of *instrumentation* – is a collection of instruments and their application for the purpose of *observation, measurement and control*.

An *instrument* is a device that measures or manipulates variables such as flow, temperature, level, or pressure. Instruments include many varied contrivances which can be as simple as valves and transmitters, and as complex as analyzers. Instruments often comprise control systems of varied processes. The control of processes is one of the main branches of applied instrumentation.

Control instrumentation includes devices such as solenoids, valves, circuit breakers, and relays. These devices are able to change a field parameter, and provide remote or automated control capabilities.

Transmitters are devices which produce an analog signal, although many other options using voltage, frequency, or pressure are possible. This signal can be used to control other instruments directly, or it can be sent to a PLC, DCS, SCADA system, or other type of computerized controller, where it can be interpreted into readable values and used to control other devices and processes in the system.

Instrumentation plays a significant role in both gathering information from the field and changing the field parameters, and as such are a key part of control loops.

*Measurement.* Instrumentation can be used to measure certain field parameters (physical values). These measured values include: pressure, either differential or static, flow, temperature – *temperature measurement*, level – *level measurement*, density, viscosity, radiation, current, voltage, inductance, capacitance, frequency, resistivity, conductivity, chemical composition, chemical properties, various physical properties.

In addition to measuring field parameters, instrumentation is also responsible for providing the ability to modify some field parameters.

*Instrumentation engineering* is the engineering specialization focused on the principle and operation of measuring instruments which are used in design and configuration of automated systems in electrical, pneumatic domains etc. They typically work for industries with automated processes, such as chemical or manufacturing plants, with the goal of improving system productivity, reliability, safety, optimization and stability. To control the parameters in a process or in a particular system *microprocessors*, *microcontrollers*, *PLCs*, etc. are used, but their ultimate aim is to control the parameters of a system.

*Instrumentation technologists*, *technicians* and *mechanics* specialize in troubleshooting and repairing and maintenance of instruments and instrumentation systems. This trade is so intertwined with electricians, pipe fitters, power engineers, and engineering companies, that one can find himself in extremely diverse working situations. An over-arching term, *instrument fitter* is often used to describe people in this field, regardless of any specialization.

**Exercise 2. Answer the questions.**

1. What is instrumentation?
2. What are instruments used for?
3. What parameters do instruments measure?
4. What do technologists and mechanics specialize in?
5. What is instrumentation engineering focused on?
6. What measuring devices can you name?
7. What is produced by transmitters?

**Exercise 3. Choose the correct word in these sentences.**

1. Microprocessors/gauges/motors are used to control parameters of a system.
2. Microprocessors/gauges/motors are used for measuring the level of substances or temperature.
3. Such devices as solenoids, valves, circuit breakers, and relays are measuring/control/troubleshooting instrumentation.
4. This analog signal can be used to control other instruments directly, or it can be sent to a system, or other type of computerized controller, where it can be interpreted into readable values/messages/properties.
5. Technicians and mechanics specialize in repairing and maintenance of memory capacity/instruments/ computer chips and instrumentation systems.
6. Measuring instruments are used in industries with automated processes, such as chemical or manufacturing plants, with the goal of improving system conductivity/productivity/resistivity.
7. Instrumentation is the branch of engineering that handles/distributes/refers to measurement and control.
8. The transducers/switches/isolators offer full scale pressure ranges from 2.5 psi up to 5000 psi.

**Exercise 4. Fill in the gaps with proper words.**

*frequency sensitivity distortion control measurement voltage relays stability microprocessor*

1. Pressure transmitters provide excellent long-term ... .
2. Multi-level switches operate remote alarms or indicators and through accessory... can control pumps and other equipment.
3. Non-... sensors provide safe operation in hazardous areas.
4. The plastic strip thermometer gives fast and reliable ... of temperature without the potential hazards posed by conventional thermometers.

5. The unit needs no limit switches, decelerating valves, mounting brackets or plumbing in many uses, yet includes close cylinder and valve coupling for efficient, leak-free motion ... .
6. Designed for industrial metal working and machining operations, the unit is a ...-based, closed-loop servomotor and drive.
7. Transducer cable lengths can vary without changing system ... or introducing signal ... .
8. This device offers high-power, low distortion and linear ... response capabilities from D.C. to ultrasound.

**Exercise 5. Match the appropriate parts of the sentences.**

- |  |  |
|--|--|
| 1. Transducer NPT 1 may be used in ...                             | a) data about physical parameters.   |
| 2. Programmable logical controllers are implemented in ...         | b) control every aspect of the machine.                                      |
| 3. All you need to do is ...                                       | c) power unit which provides hydraulics and electronic controls.             |
| 4. The controller for air conditioning systems is designed for ... | d) controlling processes in various industries.                              |
| 5. The system is fitted with its own ...                           | e) total compliance with standards that ensure high reliability of hardware. |
| 6. Radio signals from the hand held remote ...                     | f) counting the amount of products on a conveyor.                            |
| 7. Microprocessor pulse counter may be used for ...                | g) monitoring and control of temperature in premises.                        |
| 8. Multipurpose converter of analog signals provides ...           | h) to connect a sensor and supply power to the instrument.                   |

**Практическое задание №4**

**1. Translate the text.**

**INTELLECTUAL PROPERTY**

**Check whether you know the meaning of the following words and expressions:**

*Legal monopoly, creation of the mind, fields of law, intellectual property law, to grant exclusive rights, intangible assets, discovery, invention, copyright, trademark, patent, jurisdiction, commonplace, temporary, to limit, to exclude, simultaneously, to apply, marginal cost, distribution, establishment, trade-off, relevant benefits and costs, to depend, optimum period, to found, to merge, to adopt, protection, to found, prohibition, fraud, deception.*

Intellectual property (IP) is a number of distinct types of legal monopolies over creations of the mind, both artistic and commercial, and the corresponding fields of law. Under intellectual property law, owners are granted certain exclusive rights to a variety of intangible assets, such as musical, literary, and artistic works; discoveries and inventions; and words, phrases, symbols, and designs. Common types of intellectual property include copyrights, trademarks, patents, industrial design rights and trade secrets in some jurisdictions. These exclusive rights allow owners of intellectual property to reap monopoly profits. These monopoly profits provide a financial incentive for the creation of intellectual property, and pay associated research and development costs. Although many of the legal principles governing intellectual property have evolved over centuries, it was not until the 19th century that the term intellectual property began to be used, and not until the late 20th century that it became commonplace in the United States.

Intellectual property rights are temporary state-enforced monopolies regarding use and expression of ideas and information. Intellectual property rights are usually limited to non-rival goods, that is, goods which can be used or enjoyed by many people simultaneously – the use by one person does not exclude use by another. This is compared to rival goods, such as clothing, which may only be used by one person at a time. For example, any number of people may make use of a mathematical formula simultaneously. Some objections to the term intellectual property are based on the argument that property can only properly be applied to rival goods (or that one cannot "own" property of this sort).

Since a non-rival good may be simultaneously used (copied, for example) by many people (produced with minimal marginal cost), monopolies over distribution and use of works are meant to give producers incentive to create further works. The establishment of intellectual property rights, therefore, represents a trade-off, to balance the interest of society in the creation of non-rival goods (by encouraging their production) with the problems of monopoly power. Since the trade-off and the relevant benefits and costs to society will depend on many factors that may be specific to each product and society, the optimum period of time during which the temporary monopoly rights should exist is unclear.

*History.* Modern usage of the term intellectual property goes back at least as far as 1888 with the founding in Berne of the Swiss Federal Office for Intellectual Property. When the administrative secretariats established by the Paris Convention (1883) and the Berne Convention (1886) merged in 1893, they also located in Berne, and also adopted the term intellectual property in their new combined title, the United International Bureau for the Protection of Intellectual Property. The organization subsequently relocated to Geneva in 1960, and was succeeded in 1967 with the establishment of the World Intellectual Property Organization (WIPO) by treaty as an agency of the United Nations. According to Lemley, it was only at this point that the term really began to be used in the United States, and it did not enter popular usage until passage of the Bayh-Dole Act in 1980.

The concept appears to have made its first appearance after the French revolution. In an 1818 collection of his writings, the French liberal theorist, Benjamin Constant, argued against the recently-introduced idea of "property which has been called intellectual."

The concept's origins can potentially be traced back further. Jewish law includes several considerations whose effects are similar to those of modern intellectual property laws, though the notion of intellectual creations as property does not seem to exist. The Talmud contains the prohibitions against certain mental crimes which some have interpreted as prohibiting theft of ideas, though the doctrine is principally concerned with fraud and deception, not property.

**Exercise 2. Search the text for the following word combinations.**

Придать стимул производителям, исключительные права, творения разума, некоторые возражения, собрание сочинений, именно в это время, можно проследить дальше, не конкурирующие товары, мошенничество, представлять баланс, кража идей, относится к, соответствующие области.

**Exercise 3. Sort out the sentences in the order they appear in the text.**

1. Theft of ideas was mentioned in the ancient writings on Jewish law.
2. According to the law the authors obtain exclusive rights.
3. The term became popular after the bill had been passed.
4. Profits obtained allow the authors to pay expenses.
5. Intellectual property is a monopoly over creations of the mind.
6. A product can be easily copied or used.
7. Monopolies on rights give producers incentive to create further works.
8. Trademarks or copyrights are usual types of intellectual property.

**Exercise 4. Guess the words by their definition.**

- a) the complete control of trade in particular goods or a service
- b) not for public use; belonging to a particular person
- c) things that are owned by somebody
- d) a symbol or a name that a company uses for its products
- e) an official right to the person who made an invention
- f) the process (act) of finding something or learning about something
- g) to take something from a person without permission and not to intend to return
- h) known to be genuine and not a copy

**Exercise 5. Match the words to their synonyms.**

- 1. proprietor, law, notion, property, brand name, discovery, idea, piracy, appear.
- 2. trademark, plagiarism, invention, possessions, owner, thought, concept, emerge, principle.

**Практическое задание №5**

**INTERNATIONAL ORGANIZATION FOR STANDARTIZATION**

**Exercise 1. Check whether you know the meaning of the following words and expressions:**

*Widely known, international body, to be composed of, representative, various, to found, founder, to promulgate, worldwide standards, headquarters, to set standards, law, treaty, to act as a consortium, strong links, to adopt, equal, to recognize, to reflect the aim, available specifications, corrigenda, guide, to include, incomplete standards, circumstances, reference, explanation, the subject in question, under development, immediate possibility, agreement, prior to, dual logo, collaboration, external organization, similar to, technical flaws, usability improvements, to extend applicability, limited way, generally, to issue, expectation to affect standard, to be updated, to withdraw, scheduled review.*

The International Organization for Standardization, widely known as ISO, is an international-standard-setting body composed of representatives from various national standards organizations. Founded on 23 February 1947, the organization promulgates worldwide proprietary industrial and commercial standards. It has its headquarters in Geneva, Switzerland. While ISO defines itself as a non-governmental organization, its ability to set standards that often become law, either through treaties or national standards, makes it more powerful than most non-governmental organizations. In practice, ISO acts as a consortium with strong links to governments.

*Name and abbreviation.* The organization's logos in its two official languages, English and French, include the word *ISO*, and it is usually referred to by this short-form name. *ISO* is not an acronym or initialism for the organization's full name in either official language. Rather, the organization adopted *ISO* based on the Greek word *isos*, meaning *equal*. Recognizing that the organization's initials would be different in different languages, the organization's founders chose *ISO* as the universal short form of its name. This, in itself, reflects the aim of the organization: to equalize and standardize across cultures.

*International Standards and other publications.* ISO's main products are the International Standards. ISO also publishes Technical Reports, Technical Specifications, Publicly Available Specifications, Technical Corrigenda, and Guides.

International Standards are identified in the format *ISO[/IEC][/ASTM] [IS] nnnnn[:yyyy] Title*, where *nnnnn* is the number of the standard, *yyyy* is the year published, and *Title* describes the subject. *IEC* for *International Electrotechnical Commission* is included if the standard results from the work of ISO/IEC JTC1 (the ISO/IEC Joint Technical Committee). *ASTM* (American Society for Testing and Materials) is used for standards developed in cooperation with ASTM

International. The date and *IS* are not used for an incomplete or unpublished standard, and may under some circumstances be left off the title of a published work.

Technical Reports are issued when "a technical committee or subcommittee has collected data of a different kind from that which is normally published as an International Standard", such as references and explanations. The naming conventions for these are the same as for standards, except *TR* prepended instead of *IS* in the report's name. Examples:

- ISO/IEC TR 17799:2000 Code of Practice for Information Security Management
- ISO/TR 19033:2000 Technical product documentation – Metadata for construction documentation

Technical Specifications can be produced when "the subject in question is still under development or where for any other reason there is the future but not immediate possibility of an agreement to publish an International Standard". Publicly Available Specifications may be "an intermediate specification, published prior to the development of a full International Standard, or, in IEC may be a 'dual logo' publication published in collaboration with an external organization". Both are named by convention similar to Technical Reports, for example:

- ISO/TS 16952-1:2006 Technical product documentation — Reference designation system — Part 1: General application rules
- ISO/PAS 11154:2006 Road vehicles — Roof load carriers

ISO sometimes issues a Technical Corrigendum. These are amendments to existing standards because of minor technical flaws, usability improvements, or to extend applicability in a limited way. Generally, these are issued with the expectation that the affected standard will be updated or withdrawn at its next scheduled review.

ISO Guides are meta-standards covering "matters related to international standardization". They are named in the format "*ISO/[IEC] Guide N:yyyy: Title*", for example:

- ISO/IEC Guide 2:2004 Standardization and related activities — General vocabulary
- ISO/IEC Guide 65:1996 General requirements for bodies operating product certification

### **Exercise 2. Answer the questions.**

1. When was ISO founded?
2. What are its functions?
3. Why was *ISO* chosen as the universal short form?
4. In what cases can technical specifications be produced?
5. What does the notion *Technical Corrigendum* mean?

### **Exercise 3. Match the words with their definitions.**

- |                   |  |
|-------------------|--|
| 1. organization   | a. the system by which a state is controlled   |
| 2. standard       | b. body of persons appointed for a special function by a larger body   |
| 3. representative | c. administrative centre of an organization  |
| 4. headquarters   | d. discovering errors and their corrections  |
| 5. government     | e. body, system or society   |
| 6. specification  | f. object, quality, or measure serving as a basis, example, or principle to which others conform or should conform or by which others are judged |
| 7. corrigenda     | g. the process of working or acting together   |
| 8. committee      | h. statement or circumstance that clarifies  |

9. cooperation	something i. act of specifying; detail of the design and materials etc. of work done or to be done
10. explanation	j. sample, specimen, or typical embodiment of; an agent of a person or society; delegate; substitute, deputy

## Практическое задание №6

### LICENSURE

#### Exercise 1. Check whether you know the meaning of the following words and expressions:

*Licensure, granting of a license, permission, dangerous, threat, to involve, high level of skill, convenient method, professional body, licensing board, advanced, application, to vary, to obtain a privilege, to ensure, to harm, incompetence, to acquire an academic degree, to pass exam, to receive license, to gain membership, additional, entry, initially, route, to exclude.*

Licensure refers to the granting of a license, which gives a 'permission to practice.' Such licenses are usually issued in order to regulate some activity that is deemed to be dangerous or a threat to the person or the public or which involves a high level of specialized skill. The danger and skill elements inspire governments not to allow a free-for-all, but to regulate the activity, and licensing is a well-established and convenient method of regulation. Licensing includes such things as pilot and driving licenses, licenses to play professional sports, etc. In the case of certain occupations and professions, licensing is often granted through a professional body or a licensing board composed of advanced practitioners who oversee the applications for licenses. This often involves accredited training and examinations, but varies a great deal for different activities and in different countries.

In the USA and Canada, licensing (the term *registration* is sometimes used elsewhere) is usually required by law to work in a particular profession or to obtain a privilege such as to drive a car or truck or own a gun. Many privileges and professions require a license, generally from the state or provincial government, in order to ensure that the public will not be harmed by the incompetence of the practitioners. Engineering, surveying, medical practitioners, nurses, lawyers, psychologists, clinical social workers, and public accountants are some examples of professions that require licensure. Licensure is similar to professional certification, and sometimes synonymous; however, certification is an employment qualification and not a legal requirement for practicing a profession.

In many cases, an individual must complete certain steps, such as training, acquiring an academic degree in a particular area of study, and/or passing an exam, before becoming eligible to receive their license. Individuals append an acronym to their name, such as CPA (Certified Public Accountant) or PE (Professional Engineer). In the United Kingdom, licensing as a form of professional regulation predominated in the centuries before 1900. It has largely given way to memberships of professional bodies. This usually involves registration with a professional body and the granting of grades of 'associateship,' 'membership' or 'fellowship' of such a body. Gaining membership of such bodies is usually restricted solely to those who pass additional examinations after university graduation. United Kingdom examples of professional bodies include: MRIBA (member of the Royal Institute of British Architects), LRCP (licentiate of the Royal College of Physicians), MRCP (member of the Royal College of Physicians) and FRCP (fellow of the Royal College of Physicians).

Historically, in the professionalization process by which trades have transformed themselves into true professions, licensing fast became the method of choice in obtaining the

occupational closure required by barring the unqualified from entry to the rites and privileges of a professional group. This was initially the preferred route of regulation whether for physicians, lawyers, the clergy, accountants, bankers, scientists or architects. However, licensing has given way to membership of professional bodies, as a means of excluding the unqualified.

**Exercise 2. Answer the questions:**

1. What is the purpose of license issue?
2. What inspires government to regulate different kinds of activity?
3. Name some areas subject to licensing.
4. Who can grant a license?
5. What are the peculiarities of licensing in the USA and Canada?
6. What professions may require licensure?
7. What is the difference between licensure and professional certification?
8. What are the possible steps towards receiving a license?
9. What are the examples of professional bodies in the United Kingdom?
10. In your opinion, what are the benefits of licensure?

**Exercise 3. Say whether the following statements are true or false?**

1. It can be said that licensure is connected with permission to practice.
2. Licensure regulates only those activities which are not dangerous.
3. Not only professional bodies and licensing boards but also private companies and educational institutions can grant licenses.
4. The term *registration* is sometimes used to denote *licensure* in Canada and the USA.
5. An individual only has to pay a certain fee to receive a license.

**Exercise 4. Match the word with its synonyms.**

- |                  |  |
|------------------|--|
| 1. licence       | a. decree, edict, law, order, requirement, rule                                    |
| 2. permission    | b. approval, authorization, certification, guarantee, recognition, sanction        |
| 3. regulation    | c. allowance, approval, authorization, consent, go-ahead, green light, sanction    |
| 4. accreditation | d. authorization, authority, certificate, entitlement, permission, permit, warrant |
| 5. registration  | e. entry, joining, mark, note, record  |

**Exercise 5. Match the antonyms.**

- |                 |                    |
|-----------------|--------------------|
| 1. permission   | a. entrance        |
| 2. practice     | b. disorder        |
| 3. skill        | c. disadvantage    |
| 4. law          | d. including       |
| 5. privilege    | e. prohibition     |
| 6. incompetence | f. theory          |
| 7. graduation   | g. professionalism |
| 8. excluding    | h. inability       |



## Практическое задание №7

### PRODUCT CERTIFICATION (GOST R SYSTEM)

#### Exercise 1. Check whether you know the meaning of the following words and expressions:

*Confirmation, authorized certification body, obligatory requirements, legislation, to submit, customs service, wholesale and retail sellers, at the request, advertising, to prohibit, equipment, enterprise, plant, constructing organization, manufacturing, to increase demand, to enable, to compete, on profitable terms, representative office, mandatory/voluntary certification, approval of conformity, customer, supply of a consignment, in accordance with contract, invoice, valid, serial output, obligatory, to carry out inspection.*

Certification is a confirmation by an authorized certification body of production, service (work) conformance to obligatory requirements of a standard. According to the Russian legislation Mandatory certificate of conformity GOST R is necessary for any kind of production, which is imported to Russia from abroad or manufactured in Russia.

It is necessary to submit Mandatory certificate of conformity GOST R at the customs service to import products to Russia. According to Russian legislation all wholesale and retail sellers, working at the Russian market, must submit their Certificates at the request of their clients or state inspectors. Advertising of some products without mandatory GOST R conformance certificates is prohibited. All the equipment of enterprises, plants, constructing organizations is the subject to mandatory certification. It is impossible to get a license for manufacturing or constructing without certificates, inasmuch as Russian buyers first of all prefer to purchase certified production. Therefore certification of your production allows to increase demand for it noticeably, enables your product to compete with other similar products and can be sold on more profitable terms. It is not necessary for a producer (manufacturer) to have own representative office in Russia, but it is necessary to have a certificate for their production. Certification can be of two kinds:

1. Mandatory certification
2. Voluntary certification

Mandatory certification is an approval of conformity of production to the requirements of technical regulations (safety requirements). Voluntary certification is an approval of conformity of production to any requirements, set by a customer. In such cases, if certification of production is mandatory, the issued Mandatory certificate of conformity GOST R is printed on the yellow blank-form. If production certification is voluntary, the voluntary conformance certificate is printed on the blue blank-form.

There are 3 types of mandatory certificates of conformity GOST R:

1. Mandatory certificate of conformity GOST R for supply (contract) of a consignment (single supply). In this case importer – a Russian company, receives up a GOST R certificate for a single production supply. Mandatory certificate of conformity GOST R is issued to the importing company by a certification body in accordance with Contract, Invoice and other documents. The certificate is not valid for any other company or supply.

2. Mandatory Certificate of conformity GOST R for serial output for a year. In this case there is no need in a concrete importer in Russia; obligatory GOST R conformance certificate is issued to a producer (production manufacturer) for a year. That means that producer can supply its production to any companies and to any regions of Russia during a year.

3. Mandatory Certificate of conformity GOST R for 3 years for serial production. In this case there is also no need in a concrete importer in Russia, mandatory certificate of conformity GOST R is issued to a producer (production manufacturer) for 3 years. Inspection visit of Russian experts and production status checkup on the site are obligatory terms of issuance of such a certificate. Production, mentioned in obligatory certificate of conformity

GOST R, can be supplied to Russia during 3 years. In accordance with Russian legislation certification body must carry out daily inspection check up at the companies, having Mandatory certificate of conformity GOST R for 3 years.

**Exercise 2. Search the text for the following English equivalents:**

Обязательные требования, импортируемый в Россию, предоставить сертификат соответствия, таможня, российское законодательство, оптовые и розничные торговцы, по требованию клиентов или инспекторов, реклама продуктов, оборудование предприятий, строительные организации, увеличить спрос, конкурировать с другими продуктами, представительство, требования безопасности, поставлять продукцию, выдача сертификата.

**Exercise 3. Say whether the following statements are true or false:**

1. Certification is a confirmation of production/ service conformance to obligatory requirements of a standard.
2. Certificate of conformity GOST R is not necessary for production, which is imported to Russia from abroad or manufactured in Russia.
3. According to Russian legislation all wholesale and retail sellers, working at the Russian market, must submit their Certificates at the request of their clients or state inspectors.
4. Certification can be of 5 kinds.
5. If production certification is voluntary, the voluntary conformance certificate is printed on the green blank-form.

**Exercise 4. Translate the following article into English.**

*Обязательная сертификация*

Обязательная сертификация осуществляется на основании законов и законодательных положений и обеспечивает доказательство соответствия товара (процесса, услуги) требованиям технических регламентов, обязательным требованиям стандартов. Так как обязательная сертификация относится к безопасности, охране здоровья людей и окружающей среды, следовательно, аспект обязательной сертификации – безопасность и экологичность.

Обязательная сертификация, установленная законодательством РФ – это система сертификации продукции или услуг, сертификация которых является обязательным сертификатом. Сертификация продукции включает в себя различные схемы сертификации. Самые распространенные – это оформление сертификата соответствия на контракт, на серийный выпуск и на определенную партию продукции.

### **Практическое задание №8**

#### **What if standards did not exist?**

If there were no standards, we would soon notice. Standards make an enormous contribution to most aspects of our lives - although very often, that contribution is invisible. It is when there is an absence of standards that their importance is brought home. For example, as purchasers or users of products, we soon notice when they turn out to be of poor quality, do not fit, are incompatible with equipment we already have, are unreliable or dangerous. When products meet our expectations, we tend to take this for granted. We are usually unaware of the role played by standards in raising levels of quality, safety, reliability, efficiency and interchangeability - as well as in providing such benefits at an economical cost.

ISO (International Organization for Standardization) is the world's largest developer of standards. Although ISO's principal activity is the development of technical standards, ISO standards also have important economic and social repercussions. ISO standards make a positive difference, not just to engineers and manufacturers for whom they solve basic problems in production and distribution, but to society as a whole.

The International Standards which ISO develops are very useful. They are useful to industrial and business organizations of all types, to governments and other regulatory bodies, to trade officials, to conformity assessment professionals, to suppliers and customers of products and services in both public and private sectors, and, ultimately, to people in general in their roles as consumers and end users.

ISO standards contribute to making the development, manufacturing and supply of products and services more efficient, safer and cleaner. They make trade between countries easier and fairer. They provide governments with a technical base for health, safety and environmental legislation. They aid in transferring technology to developing countries. ISO standards also serve to safeguard consumers, and users in general, of products and services - as well as to make their lives simpler.

When things go well - for example, when systems, machinery and devices work well and safely - then often it is because they conform to standards. And the organization responsible for many thousands of the standards which benefit society worldwide is ISO.

**Exercise 1. Match the words with their definition.**

- |                          |   |
|--------------------------|---|
| 1. Standard              | a. the quality of being capable of exchange or interchange  |
| 2. Conformity assessment | b. the law enacted by a legislative body or the act of making or enacting laws                    |
| 3. Interchangeability    | c. a degree or grade of excellence or worth   |
| 4. Quality               | d. any definite rule, principle or measure established by authority                               |
| 5. Legislation           | e. any activity concerned with determining directly or indirectly that requirements are fulfilled |

**Exercise 2. Match the synonyms.**

- |                  |                      |
|------------------|----------------------|
| 1. repercussions | a. to be of profit   |
| 2. enormous      | b. effective         |
| 3. to turn out   | c. to fit in         |
| 4. to safeguard  | d. hope              |
| 5. principal     | e. not known         |
| 6. expectation   | f. to protect        |
| 7. unaware       | g. main              |
| 8. to conform    | h. to happen         |
| 9. to benefit    | i. results (effects) |
| 10. efficient    | j. large             |

**Exercise 3. Match the antonyms.**

- |                          |                          |
|--------------------------|--------------------------|
| 1. purchaser             | a. small                 |
| 2. public                | b. producer              |
| 3. to be of poor quality | c. to know               |
| 4. unreliable            | d. negative              |
| 5. to be unaware         | e. to be of high quality |
| 6. positive              | f. reliable              |
| 7. enormous              | g. seller                |
| 8. consumer              | h. private               |

## Практическое задание №9

### Measurement Standards

•Can measurement standards make our life easier?

•Read the text below to find out how different kinds of standards can contribute to the measurement procedure.

The word "standard" is used with two different meanings: as a widely adopted specification, technical recommendation or similar document (in French, "norme"); and also as a measurement standard (in French, "étalon"). The qualifier "measurement" should therefore be used to avoid misunderstandings. A measurement standard can be a physical measure, measuring instrument, reference material or measuring system intended to define, realize, conserve or reproduce a unit or one or more values of a quantity to serve as a reference.

There is a hierarchy of measurement standards.

#### International measurement standards

Standard recognized by an international agreement to serve internationally as the basis for assigning values to other standards of the quantity concerned.

The custodian of international measurement standards is the BIPM (International Bureau of Weights and Measures) in Sèvres near Paris. The oldest standard in use is the kilogram prototype.

#### National measurement standards

Standard recognized by national law to serve, in a country, as the basis for assigning values to other standards of the quantity concerned.

The custodian of national measurement standards is usually a national laboratory called the National Metrology Institute, National Bureau of Standards or National Bureau of Weights and Measures. Some countries do not have national measurement standards.

#### Primary standards

Standard that is designated or widely acknowledged as having the highest metrological qualities and whose value is accepted without reference to other standards of the same quantity.

Primary standards are, for example, Josephson devices for the realization of the quantity "volt," or stabilized lasers with interferometers for the realization of the quantity "length". These devices are used as national standards by many National Metrology Institutes and some of the best-equipped calibration laboratories.

#### Secondary standards

Standard whose value is assigned by comparison to a primary standard of the same quantity. Primary standards are usually used to calibrate secondary standards.

#### Working standards

Standard that is used routinely to calibrate or check material measures, measuring instruments, or reference materials.

A working standard is usually calibrated against a secondary standard. A working standard used routinely to ensure that measurements are being carried out correctly is called a "check standard". There is no general requirement as far as the accuracy of standards is concerned. A working standard in one location may be good enough to serve as the reference standard or even as a national standard in another. The accuracy of some measuring instruments used in industry is so high that primary standards are necessary for calibration.

#### Reference standards

Standard generally having the highest metrological quality available at a given location or in a given organization, from which the measurements made at that location are derived.

Calibration laboratories maintain reference standards for calibrating their working standards.

#### Transfer standards

Standard used as an intermediary to compare standards.

Resistors are used as transfer standards for comparisons of voltage standards, weights are used to compare balances.

### Travelling standard

Standard, sometimes of special construction, intended for transport between different locations, and used for inter-comparison of standards. A portable battery-operated cesium frequency standard may be used as a travelling standard. Calibrated load cells are used as travelling force standards.

#### Exercise 1. Give detailed answers to the following questions.

1. What does the word “standard” mean?
2. What is a measurement standard?
3. What types of measurement standards do you know?
4. What is the custodian of international measurement standards?
5. How does an international measurement standard work?
6. Why don't any countries have national measurement standards?
7. What is the difference between primary and secondary standards?
8. What is a working standard used for?
9. Why is it called a “check standard”?
10. What do calibration laboratories maintain for calibrating their working standards?
11. What is used to compare standards?
12. What is the example of travelling force standards?
13. What are seven basic measurement units in the SI system?

#### Exercise 2. Match the pairs of synonyms.

- |                         |                |
|-------------------------|----------------|
| 1. recommendation       | a) acknowledge |
| 2. document             | b) dimension   |
| 3. recognize            | c) ascribe     |
| 4. agreement            | d) precision   |
| 5. derive               | e) gauge       |
| 6. assign               | f) advice      |
| 7. custodian            | g) the same    |
| 8. measuring instrument | h) covenant    |
| 9. calibrate            | i) graduate    |
| 10. measurement         | j) paper       |
| 11. carry out           | k) guard       |
| 12. accuracy            | l) perform     |
| 13. similar             | m) obtain      |

#### Exercise 3. Make up word combinations from two columns and give their Russian equivalents.

- |                  |                  |
|------------------|------------------|
| 1. measurement   | a) of a quantity |
| 2. reference     | b) laboratory    |
| 3. measuring     | c) material      |
| 4. value         | d) agreement     |
| 5. international | e) quality       |
| 6. national      | f) standard      |
| 7. metrological  | g) measure       |
| 8. calibration   | h) law           |
| 9. material      | i) instrument    |

### Практическое задание №10

#### I. Translate the text.

## **Eco-labelling**

**Have you ever heard of eco-labelling? Is it used in your country?**

**Read the text below to find out what eco-labelling schemes exist.**

Eco-labelling is sometimes also called environmental labelling. By choosing a product with an eco-label, the consumer makes a deliberate and informed choice to purchase a product or a service that causes less damage to the environment than another similar product or service. It does not mean that the product has no negative influence on the environment, but it does mean that it is appreciably better than “just another” product or service. Eco-labelling is therefore different from the setting of minimum product standards or requirements.

Eco-labelling can be broadly classified as either first-party, or third-party certified. First party, or "self declaration of conformity" is performed by the suppliers themselves to promote the positive social or environmental aspects of their products. Third-party certification is carried out by independent or governmental organizations, having no financial interest in the product. These organizations evaluate the products or services according to a set of publicly defined criteria.

You will find eco-labelling schemes all round the world. It has a long history especially in Europe with Germany's “Blue Angel” environmental label that has been available since 1978. This is not its official name, which is “Environmental Label”, but the specific product mark resembles a blue angel, hence it became known under that name. More than 30 countries at the last count run such schemes. These schemes deal with a vast number of products ranging from air conditioning, automotive industry, housing, dairy products, paints, paper products to windows and doors, and many more.

The Global Eco-labelling Network (GEN) was founded in 1994 to improve, promote and develop the eco-labelling of products and services. Currently, the members of GEN include 14 eco-labelling organizations from Europe, Asia, and North and South America, including major organizations such as Green Seal of the USA and Blue Angel of Germany. Some of their activities include the collection and provision of information on eco-labelling programmes, participation in eco-labelling activities of UNEP (the United Nations Environment Programme), ISO (International Organization for Standardization), and WTO (the World Trade Organization). They also explore mutual recognition programmes and provide a mechanism for information exchange.

ISO (the International Organization for Standardization) has also published a number of international standards dealing with eco-labelling in the well-known ISO 14000 series. These standards are fairly new, but will be used more and more in the near future by certification organizations and industry.

### **Exercise 1. Answer the following questions.**

- 1) What is eco-labelling?
- 2) What is first-party certification? How is it different from third-party certification?
- 3) What is “Blue Angel”?
- 4) There are different labeling schemes, aren't there? What products do they deal with?
- 5) Why was The Global Eco-labelling Network founded?
- 6) What is the role of ISO in promoting eco-labelling schemes?

### **Exercise 2. Agree or disagree with the following ideas from the text.**

A product or a service with an eco-label causes no damage to the environment.

Eco-labelling is different from the setting of minimum product standards or requirements.

Eco-labelling can be broadly classified as either first-party or second-party certified.

“Blue Angel” is an eco-label that has a long history in the USA.

The Global Eco-labelling Network was founded to promote and develop the eco-labelling of products and services.

The International Organization for Standardization is the largest certification organization in the world.

The well-known ISO 14000 series standards deal with eco-labelling.

Eco-labelling schemes are used only with regard to products.

**Exercise 4. Match the synonyms.**

- |                |                        |
|----------------|------------------------|
| 1. consumer    | a) harm                |
| 2. buy         | b) to assess           |
| 3. damage      | c) to help to organize |
| 4. declare     | d) to perform          |
| 5. influence   | e) supply              |
| 6. currently   | f) agreement           |
| 7. evaluate    | g) to purchase         |
| 8. provision   | h) now                 |
| 9. resemble    | j) to be similar to    |
| 10. promote    | k) effect              |
| 11. conformity | l) to claim            |
| 12. carry out  | m) customer            |

**Exercise 5. Make up word combinations from two columns and give their Russian equivalents.**

- |                  |                  |
|------------------|------------------|
| 1. eco-labelling | a) labelling     |
| 2. third-party   | b) criteria      |
| 3. environmental | c) network       |
| 4. deliberate    | d) recognition   |
| 5. defined       | e) exchange      |
| 6. global        | f) certification |
| 7. mutual        | g) choice        |
| 8. information   | h) organizations |
| 9. certification | i) activity      |

#### 4. Критерии оценивания

**«5» «отлично»** – студент показывает глубокое и полное овладение содержанием программного материала по УД в совершенстве владеет понятийным аппаратом и демонстрирует умение применять теорию на практике, решать различные практические и профессиональные задачи, высказывать и обосновывать свои суждения в форме грамотного, логического ответа (устного или письменного), а также высокий уровень овладение общими и профессиональными компетенциями и демонстрирует готовность к профессиональной деятельности;

**«4» «хорошо»** – студент в полном объеме освоил программный материал по УД владеет понятийным аппаратом, хорошо ориентируется в изучаемом материале, осознанно применяет знания для решения практических и профессиональных задач, грамотно излагает ответ, но содержание, форма ответа (устного или письменного) имеют отдельные неточности, демонстрирует средний уровень овладение общими и профессиональными компетенциями и готовность к профессиональной деятельности;

**«3» «удовлетворительно»** – студент обнаруживает знание и понимание основных положений программного материала по УД но излагает его неполно, непоследовательно, допускает неточности в определении понятий, в применении знаний для решения практических и профессиональных задач, не умеет доказательно обосновать свои суждения, но при этом демонстрирует низкий уровень овладения общими и профессиональными компетенциями и готовность к профессиональной деятельности;

**«2» «неудовлетворительно»** – студент имеет разрозненные, бессистемные знания, не умеет выделять главное и второстепенное, допускает ошибки в определении понятий, беспорядочно и неуверенно излагает программный материал по УД не умеет применять знания для решения практических и профессиональных задач, не демонстрирует овладение общими и профессиональными компетенциями и готовность к профессиональной деятельности.



## 5. Информационное обеспечение

перечень учебных изданий, электронных изданий, электронных и Интернет-ресурсов, образовательных платформ, электронно-библиотечных систем, веб-систем для организации дистанционного обучения и управления им, используемые в образовательном процессе как основные и дополнительные источники.

### Основные источники:

1. Безкоровайная Г.Т. Английский язык : учеб. для учреждений сред. проф. образования (с диском) (Planet of English) – М.: Издательский центр «Академия», 2022. ISBN 978-5-4468-9252-5

2. Безкоровайная Г.Т. Английский язык : учеб. для учреждений сред. проф. образования (с диском) (Planet of English) Текст: электронный // Электронно-библиотечная система.М.: Издательский центр «Академия» [сайт], 2022. ISBNURL:

3. Буренко, Л. В. Грамматика английского языка. Grammar in Levels Elementary – Pre-Intermediate : учебное пособие для среднего профессионального образования / Л. В. Буренко, О. С. Тарасенко, Г. А. Краснощекова ; под общей редакцией Г. А. Краснощековой. — Москва : Юрайт, 2020. — 227 с. — (Профессиональное образование). — ISBN 978-5-9916-9261-8. — URL: <https://urait.ru/bcode/452909> (дата обращения: 23.08.2021). — Режим доступа: Электронно-библиотечная система Юрайт. - Текст : электронный

4. Голубев А.П. Английский язык для технических специальностей. – М.: Издательский центр «Академия», 2020. (Профессиональное образование) ISBN 978-5-4468-9206-82.

5. Голубев, А.П. Английский язык для всех специальностей + eПриложение : учебник / Голубев А.П., Балюк Н.В., Смирнова И.Б. — Москва : КноРус, 2021. — 385 с. — ISBN 978-5-406-08132-7. — URL: <https://book.ru/book/939214> (дата обращения: 19.08.2021). — Режим доступа: Электронно-библиотечная система BOOK.RU. - Текст : электронный.

6. Карпова, Т.А. English for Colleges = Английский язык для колледжей. Практикум + eПриложение : тесты : учебно-практическое пособие / Карпова Т.А., Восковская А.С., Мельничук М.В. — Москва : КноРус, 2020. — 286 с. — (СПО). — ISBN 978-5-406-07527-2. — Текст: непосредственный.

7. Карпова, Т.А. English for Colleges = Английский язык для колледжей. Практикум + eПриложение : тесты : учебно-практическое пособие / Карпова Т.А., Восковская А.С., Мельничук М.В. — Москва : КноРус, 2020. — 286 с. — (СПО). — ISBN 978-5-406-07527-2. — URL: <https://book.ru/book/932751> (дата обращения: 24.03.2020). — Режим доступа: Электронно-библиотечная система BOOK.RU. - Текст : электронный.

8. Кохан, О. В. Английский язык для технических специальностей : учебное пособие для среднего профессионального образования / О. В. Кохан. — 2-е изд., испр. и доп. — Москва : Юрайт, 2019. — 226 с. — (Профессиональное образование). — ISBN 978-5-534-08983-7. — Текст : непосредственный.

9. Кохан, О. В. Английский язык для технических специальностей : учебное пособие для среднего профессионального образования / О. В. Кохан. — 2-е изд., испр. и доп. — Москва : Издательство Юрайт, 2019. — 226 с. — (Профессиональное образование). — ISBN 978-5-534-08983-7. — URL: <https://urait.ru/bcode/437135> (дата обращения: 23.08.2021). — Режим доступа: Электронно-библиотечная система Юрайт. - Текст : электронный.

10. Кузнецова, Т. С. Английский язык. Устная речь. Практикум : учебное пособие для СПО / Т. С. Кузнецова. — 2-е изд. — Саратов, Екатеринбург : Профобразование, Уральский федеральный университет, 2019. — 267 с. — ISBN 978-5-4488-0457-1, 978-5-7996-2846-8. — Текст : электронный // Электронный ресурс цифровой образовательной среды СПО PROФобразование : [сайт]. — URL: <https://profspo.ru/books/87787>

11. Кузьменкова, Ю. Б. Английский язык для технических колледжей (А1) : учебное пособие для среднего профессионального образования / Ю. Б. Кузьменкова. — Москва : Издательство Юрайт, 2021. — 207 с. — (Профессиональное образование). — ISBN 978-5-534-12346-3. — URL: <https://urait.ru/bcode/475659> (дата обращения: 23.08.2021). — Режим доступа: Электронно-библиотечная система Юрайт. - Текст : электронный.

12. Литвинская, С. С. Английский язык для технических специальностей : учебное пособие / С. С. Литвинская. — Москва : ИНФРА-М, 2020. — 252 с. — (Среднее профессиональное образование). - ISBN 978-5-16-014535-8. - URL: <https://znanium.com/catalog/product/989248> (дата обращения: 19.08.2021). — Режим доступа: по подписке. — Текст : электронный.

13. Малецкая, О. П. Английский язык : учебное пособие для СПО / О. П. Малецкая, И. М. Селевина. — 2-е изд., стер. — Санкт-Петербург : Лань, 2021. — 136 с. — ISBN 978-5-8114-8057-9.

14. Малецкая, О. П. Английский язык : учебное пособие для СПО / О. П. Малецкая, И. М. Селевина. — 2-е изд., стер. — Санкт-Петербург : Лань, 2021. — 136 с. — ISBN 978-5-8114-8057-9. — Текст : электронный // Лань : электронно-библиотечная система. — URL: <https://e.lanbook.com/book/171416> (дата обращения: 13.05.2022). — Режим доступа: для авториз. пользователей.

15. Скачкова, Е. А. Business English : учебное пособие для СПО / Е. А. Скачкова. — Саратов : Профобразование, 2019. — 201 с. — ISBN 978-5-4488-0335-2. — Текст : электронный // Электронный ресурс цифровой образовательной среды СПО PROФобразование : [сайт]. — URL: <https://profspo.ru/books/86067>

#### **Дополнительные источники**

1. ГОСТ ЭКСПЕРТ – единая база ГОСТов РФ – URL: <https://gostexpert.ru/>
2. РОССТАНДАРТ - Федеральное агентство по техническому регулированию и метрологии – URL: <https://www.rst.gov.ru/portal/gost/>
3. Информационно-образовательный портал по английскому языку Study.ru: сайт.—URL:<https://www.mystudy.ru>—(дата обращения: 23.08.2021).—Текст : электронный.

#### **Электронно-библиотечная система:**

IPR BOOK - <http://www.iprbookshop.ru/78574.html>

#### **Веб-система для организации дистанционного обучения и управления им:**

Система дистанционного обучения ОГАПОУ «Алексеевский колледж»  
<http://moodle.alcollege.ru/>