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МИНИСТЕРСТВО НАУКИ И ВЫСШЕГО ОБРАЗОВАНИЯ РОССИЙСКОЙ ФЕДЕРАЦИИ  
**ФЕДЕРАЛЬНОЕ ГОСУДАРСТВЕННОЕ БЮДЖЕТНОЕ  
ОБРАЗОВАТЕЛЬНОЕ УЧРЕЖДЕНИЕ ВЫСШЕГО ОБРАЗОВАНИЯ  
«ДОНСКОЙ ГОСУДАРСТВЕННЫЙ ТЕХНИЧЕСКИЙ УНИВЕРСИТЕТ»  
(ДГТУ)  
АВИАЦИОННО-ТЕХНОЛОГИЧЕСКИЙ КОЛЛЕДЖ**

УТВЕРЖДАЮ  
Директор колледжа  
В.А. Зибров  
« \_\_\_\_ » \_\_\_\_\_ 2023 г.

**Фонд оценочных средств**  
**для проведения текущего контроля и промежуточной аттестации**  
**в форме дифференцированного зачета**  
**по дисциплине ОГСЭ.02 Иностранный язык в профессиональной деятельности**  
**в рамках программы подготовки специалистов среднего звена (ППССЗ) специальности СПО**  
**15.02.16 Технология машиностроения**

Ростов-на-Дону  
2023 г.

**Разработчик:**

Преподаватель АТК ДГТУ

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Ф.И.О.

«\_\_» \_\_\_\_\_ 20\_\_ г.

Фонд оценочных средств рассмотрен и одобрен на заседании цикловой комиссии

«\_\_\_\_\_»

Протокол № \_\_\_\_\_ от «\_\_» \_\_\_\_\_ 20\_\_ г

Председатель цикловой комиссии

\_\_\_\_\_.

Ф.И.О.

«\_\_» \_\_\_\_\_ 20\_\_ г.

Комплект оценочных средств предназначен для студентов специальностей

15.02.16 Технология машиностроения

## 1. Паспорт комплекта контрольно-оценочных средств

ФОС предназначены для контроля и оценки образовательных достижений обучающихся, освоивших программу учебной дисциплины «Иностранный язык».

ФОС включают контрольные материалы для проведения рубежного контроля в форме контрольных и проверочных работ, текущего контроля и промежуточной аттестации в форме дифференцированного зачета.

В результате освоения учебной дисциплины «Иностранный язык» обучающийся должен обладать предусмотренными ФГОС по специальности 15.02.16 Технология машиностроения следующими умениями и знаниями, которые формируют профессиональную компетенцию, и общими компетенциями:

Результаты обучения (освоенные умения, усвоенные знания)	Формы и методы контроля и оценки результатов обучения
<b>Умения</b>	
<p><b>Говорение:</b> - вести диалог (диалог-расспрос, диалог обмен мнениями/суждениями, диалог-побуждение к действию, этикетный диалог и их комбинации) в ситуациях официального и неофициального общения в бытовой, социокультурной и учебно-трудовой сферах, используя аргументацию, эмоционально-оценочные средства;</p>	интерпретация результатов наблюдений за деятельностью обучающегося в ходе проведения ситуативных бесед
- рассказывать, рассуждать в связи с изученной тематикой, проблематикой/прочитанных текстов; описывать события, излагать факты, делать сообщения;	анализ результатов выполнения проектных работ, докладов; интерпретация результатов наблюдений за деятельностью обучающегося в ходе проведения ситуативных бесед
- создавать словесный социокультурный портрет своей страны и страны/стран изучаемого языка на основе разнообразной страноведческой и культуроведческой информации;	анализ результатов выполнения докладов, рефератов; интерпретация результатов наблюдений за деятельностью обучающегося в ходе проведения ситуативных бесед
<p><b>Аудирование:</b> - понимать относительно полно (общий смысл) высказывания на изучаемом на изучаемом иностранном языке в различных ситуациях общения;</p>	интерпретация результатов наблюдений за деятельностью обучающегося в ходе проведения ситуативных бесед
- понимать основное содержание аутентичных аудио- или видеотекстов познавательного характера на темы, предлагаемые в рамках курса, выборочно извлекать из них необходимую информацию;	устный/письменный опрос на понимание обучающимся содержания прослушанных видео/аудио записей
- оценивать важность/новизну информации, определять свое отношение к ней;	устный/письменный опрос на понимание обучающимся содержание прослушанных видео/аудио записей

<b>Чтение:</b>	
- читать аутентичные тексты разных стилей (публицистические, художественные, научно-популярные и технические), используя основные виды чтения (ознакомительное, изучающее, просмотровое/поисковое) в зависимости от коммуникативной задачи;	интерпретация результатов наблюдений за деятельностью обучающихся в ходе просмотрового и поискового чтения газетных, журнальных статей (со словарем, без словаря)
<b>Письменная речь:</b>	
- описывать явления, события, излагать факты в письме личного и делового характера;	анализ результатов написания сочинений, рефератов
- заполнять различные виды анкет, сообщать сведения о себе в форме, принятой в стране/странах изучаемого языка;	анализ результатов написания резюме, писем
<b>Знания:</b>	
- значения новых лексических единиц, связанных с тематикой данного этапа и с соответствующими ситуациями общения;	Устный/письменный опрос
- языковой материал: идиоматические выражения, оценочную лексику, единицы речевого этикета и обслуживающие ситуации общения в рамках изучаемых тем;	Устный/письменный опрос
- новые значения изученных глагольных форм (видо-временных, неличных) средства и способы выражения модальности; условия, предположения, причины, следствия, побуждения к действию;	тестирование
- лингвострановедческую, страноведческую и социокультурную информацию, расширенную за счет новой тематики и проблематики речевого общения;	Устный/письменный опрос, тестирование
- тексты, построенные на языковом материале повседневного и профессионального общения, в том числе инструкции и нормативные документы по профессиям и специальностям СПО.	Устный/письменный опрос, тестирование
	Зачет, дифференцированный зачет

## 2. Комплект оценочных средств

**Промежуточный контроль** по дисциплине «Иностранный язык» осуществляется в виде текущего контроля успеваемости студентов и промежуточного контроля, проводимых согласно Положению о проведении текущего контроля успеваемости и промежуточной аттестации, утвержденному приказом колледжа.

В соответствии с учебным планом промежуточная аттестация по данной дисциплине проводится в форме *дифференцированного зачета* (2 семестр).

### **Уровни освоения дисциплины:**

**Первый уровень:** Результаты обучения студентов свидетельствуют об усвоении ими некоторых элементарных знаний основных вопросов по дисциплине. Допущенные ошибки и неточности показывают, что студенты не овладели необходимой системой знаний по дисциплине.

**Второй уровень:** Достигнутый уровень оценки результатов обучения показывает, что студенты обладают необходимой системой знаний и владеют некоторыми умениями по дисциплине. Студенты способны понимать и интерпретировать усвоенную информацию, что является основой успешного формирования умений и навыков для решения практико-ориентированных задач.

**Третий уровень:** Студенты продемонстрировали результаты на уровне осознанного владения учебным материалом и учебными умениями, навыками и способами деятельности по дисциплине. Студенты способны анализировать, проводить сравнение и обоснование выбора методов решения заданий в практико-ориентированных ситуациях.

### **ШКАЛА ОЦЕНИВАНИЯ**

Характеристика уровней освоения компетенции	
Уровни	Содержание
Минимальный	Обучающийся обладает необходимой системой знаний и владеет некоторыми умениями

<b>Характеристика уровней освоения компетенции</b>	
<b>Уровни</b>	<b>Содержание</b>
<i>Базовый</i>	Обучающийся демонстрирует результаты на уровне осознанного владения учебным материалом и учебными умениями, навыками и способами деятельности
<i>Продвинутый</i>	Достигнутый уровень является основой для формирования общекультурных и профессиональных компетенций, соответствующих требованиям ФГОС.

#### **УРОВЕНЬ ОСВОЕНИЯ СФОРМИРОВАННОСТИ ЗНАНИЙ, УМЕНИЙ И НАВЫКОВ**

Уровень освоения сформированности знаний, умений и навыков по дисциплине оценивается в форме бальной отметки:

**"Отлично"** заслуживает студент, обнаруживший всестороннее, систематическое и глубокое знание учебно-программного материала, умение свободно выполнять задания, предусмотренные программой, усвоивший основную и знакомый с дополнительной литературой, рекомендованной программой. Как правило, оценка "отлично" выставляется студентам, усвоившим взаимосвязь основных понятий дисциплины в их значении для приобретаемой профессии, проявившим творческие способности в понимании, изложении и использовании учебно-программного материала.

**"Хорошо"** заслуживает студент обнаруживший полное знание учебно-программного материала, успешно выполняющий предусмотренные в программе задания, усвоивший основную литературу, рекомендованную в программе. Как правило, оценка "хорошо" выставляется студентам, показавшим систематический характер знаний по дисциплине и способным к их самостоятельному пополнению и обновлению в ходе дальнейшей учебной работы и профессиональной деятельности.

**"Удовлетворительно"** заслуживает студент, обнаруживший знания основного учебно-программного материала в объеме, необходимом для дальнейшей учебы и предстоящей работы по специальности, справляющийся с выполнением заданий, предусмотренных программой, знакомый с основной литературой, рекомендованной

программой. Как правило, оценка "удовлетворительно" выставляется студентам, допустившим погрешности в ответе на экзамене и при выполнении экзаменационных заданий, но обладающим необходимыми знаниями для их устранения под руководством преподавателя.

"**Неудовлетворительно**" выставляется студенту, обнаружившему пробелы в знаниях основного учебно-программного материала, допустившему принципиальные ошибки в выполнении предусмотренных программой заданий. Как правило, оценка "неудовлетворительно" ставится студентам, которые не могут продолжить обучение или приступить к профессиональной деятельности по окончании вуза без дополнительных занятий по соответствующей дисциплине.

**Оценка «зачтено»** выставляется студенту, который прочно усвоил предусмотренный программный материал; правильно, аргументировано ответил на все вопросы, с приведением примеров; показал глубокие систематизированные знания, владеет приемами рассуждения и сопоставляет материал из разных источников: теорию связывает с практикой, другими темами данного курса, других изучаемых предметов; без ошибок выполнил практическое задание.

Обязательным условием выставленной оценки является правильная речь в быстром или умеренном темпе. Дополнительным условием получения оценки «зачтено» могут стать хорошие успехи при выполнении самостоятельной и контрольной работы, систематическая активная работа на семинарских занятиях.

**Оценка «не зачтено»** Выставляется студенту, который не справился с 50% вопросов и заданий билета, в ответах на другие вопросы допустил существенные ошибки. Не может ответить на дополнительные вопросы, предложенные преподавателем. Целостного представления о взаимосвязях, компонентах, этапах развития культуры у студента нет. Оценивается качество устной и письменной речи, как и при выставлении положительной оценки.

#### ШКАЛА ОЦЕНИВАНИЯ

Качество освоения программы	Уровень достижений	Отметка в 5-балльной шкале	Зачтено/ не зачтено
90-100%	<i>продвинутый</i>	«5» (отлично)	зачтено

66 -89%	<i>базовый</i>	«4» (хорошо)	зачтено
50 -65 %	<i>минимальный</i>	«3» (удовлетворительно)	зачтено
меньше 50%	<i>ниже минимального</i>	«2» (неудовлетворительно)	не зачтено

**Зачет 4 семестр  
по дисциплине ОГСЭ 03 «Иностранный язык»  
специальность: 15.02.08 «Технология машиностроения»**

**I. You will hear 5 people talking about different technological items. For questions 1-5, choose from the list of items A-F what each speaker is describing. There is one extra letter.**

- A. a digital camera    B. a video camera    C. a video recorder    D. a mobile phone  
E. a remote control    F. an electronic organizer

Speaker 1  
Speaker 5

Speaker 2

Speaker 3

Speaker 4

**II. Comprehension. Read the text and choose the right variant.**

**Text 1. TRENDS IN THE MODERN MACHINE-BUILDING INDUSTRY**

The scientific and technological progress will continue in engineering along in two main headlines. Firstly, it is automation, including the creation of “unmanned” industries. Secondly, raising the reliability and extending the service life of machines.

This certainly requires new technology. The machine modules on a large scale are well suited for “unmanned” industries.

Intense work is being carried out on new robots. What we need is not merely manipulators which can take up a workpiece and pass it on, but robots which can identify objects, their position in space, etc.

We also need machines that would trace the entire process of machining. Some have been designed and are manufactured. Modern engineering thinking has created new automated coal-digging complexes and machine systems, installations for the continuous casting of steel, machine tools for electrophysical and electrochemical treatment of metals, unique welding equipment, automatic rotor transfer lines and machine-tool modules for flexible industries.



New technologies and equipment have been designed for most branches of engineering.

In the shortest time possible the engineers are to start producing new generations of machines and equipment which would allow manufacturers to increase productivity several times and to find a way for the application of advanced technologies.

Large reserves in expanding service life for machines can be found in the process of designing. At present, advanced methods have been evolved for designing machines proceeding from a number of criteria. Automatic design systems allow for an optimizing of the solutions in design and technology when new machines are still in the blueprint stage.

A promising reserve in increasing the life of parts is strengthening treatment. In recent years new highly efficient methods have been found.

First and foremost of them is the vacuum plasma method for coating components with hard alloy compounds, such as nitrides and carbides of titanium, tungsten and boron. Methods have been designed for reinforcing machine part most vulnerable to wear and tear, such as in grain harvesters, to make them last several times longer.

Thus, it is not merely quantity engineers and scientists are after rather it is a matter of major characteristics. In other words, this is a matter quality, and not of the mere number of new machines, apparatuses and materials.

#### 1.1 Translate the word-combinations:

Срок службы, передовые методы, электрофизическая обработка, модуль станка, система проектирования, составы из твердых сплавов, методы вакуумной плазмы, упрочнение деталей машин, гибкое производство, полностью автоматизированное производство

#### 1.2 Translate the sentences:

1. Much attention is being given at present to the modern equipment of research laboratories.
2. The idea of constructing a new auto plant was widely discussed some years ago.
3. Much is being done to improve the conditions for research work.
4. Wide investigation is being carried on in the field of machine-building.
5. Many old plants and shops are being expanded and reconstructed now.

#### Exercise 1.3 Answer the questions:

1. Name the main trends in modern machine-building.
2. What does automation include?

3. In what way can automation be achieved?
4. What is the role of new technologies?
5. Give some examples of advanced methods for increasing the service life of machine parts.
6. How can the process of designing be improved?
7. What is the main task of the engineers and scientists developing new machines and technologies?

## **Text 2. FIVE BASIC TECHNIQUES**

The variety and combination of machine tools are unlimited today. Some are small and may be mounted on a workbench. Others are so large that they are housed in special buildings.

Large or small machine tools can be classified in five main groups according to the five basic techniques of shaping metal. These basic operations include drilling and boring (including reaming and tapping), turning, milling, planing (including shaping and broaching) and grinding (including honing). Each machine performs one or more of these operations. Variations of five basic techniques are used for special situations. There are, for example, machines that combine two of these techniques, as in a boring, drilling and milling machine or a combination of milling and planing machine.

In addition to the five basic techniques there are newer metal shaping methods developed during the past two decades. These new methods employ corrosion, erosion and force characteristics of chemicals, electricity, magnetism, liquids, sound and light.

**Drilling and boring.** Drilling is a basic machine shop technique. It consists of cutting a round hole by means of a rotating drill. Boring, on the other hand, is the process of finishing a hole already drilled by means of a rotating single-point tool. On some boring machines, the tool is in a fixed position and the work revolves; on others the work is held fixed and the tool revolves.

Under the classification of drilling and boring, there are two types of technique: reaming and tapping. Reaming consists of finishing a hole already drilled. Tapping is the process of cutting a thread in a hole.

2.1. Прочитайте текст и найдите в нем ответы на следующие вопросы:

1. How many groups can machine tools be classified?
2. What basic operations of shaping metal do machine tools include?
  1. What new metal shaping methods were developed during the past two decades?
  2. What do these new methods employ?
3. What is drilling?
4. What is boring?
5. What differs drilling machines from boring machines?

6. What is the difference between reaming and tapping?

2.2 Translate the sentences:

1. Forging is one of the leading technological processes of modern industry.

2. These machines were built up by the workers of our plant for three hours.

3. All these forged parts were made of different materials.

4. The students of the machine-building industry were shown various manufacturing processes.

5. This part was made of steel by casting

6. The main parts of these machines were produced by forging.

7. The machine-building plant of our town produces these machine-tools (металлорежущие станки).

8. The loss of metal in chips in forging process is reduced.

9. The selecting of the most suitable method of forging entails the minimum consumption of metal.

10. The art of drawing metal has developed very rapidly in the last 20 years.

### **Text 3: METALS**

Metals are materials most widely used in industry because of their properties. The study of the production and properties of metals is known as metallurgy.

The separation between the atoms in metals is small, so most metals are dense. The atoms are arranged regularly and can slide over each other. That is why metals are malleable (can be deformed and bent without fracture) and ductile (can be drawn into wire). Metals vary greatly in their properties. For example, lead is soft and can be bent by hand, while iron can only be worked by hammering at red heat.

The regular arrangement of atoms in metals gives them a crystalline structure. Irregular crystals are called grains. The properties of the metals depend on the size, shape, orientation, and composition of these grains. In general, a metal with small grains will be harder and stronger than one with coarse grains.

Heat treatment such as quenching, tempering, or annealing controls the nature of the grains and their size in the metal. Small amounts of other metals (less than 1 per cent) are often added to a pure metal. This is called alloying (легирование) and it changes the grain structure and properties of metals.

All metals can be formed by drawing, rolling, hammering and extrusion, but some require hot-working. Metals are subject to metal fatigue and to creep (the slow increase in length under

stress) causing deformation and failure. Both effects are taken into account by engineers when designing, for example, airplanes, gas-turbines, and pressure vessels for high-temperature chemical processes. Metals can be worked using machine-tools such as lathe, milling machine, shaper and grinder.

The ways of working a metal depend on its properties. Many metals can be melted and cast in moulds, but special conditions are required for metals that react with air.

3.1 Answer the questions:

1. What are metals and what do we call metallurgy?
2. Why are most metals dense?
3. Why are metals malleable?
4. What is malleability?
5. What are grains?
6. What is alloying?
7. What is crystalline structure?
8. What do the properties of metals depend on?
9. What changes the size of grains in metals?
10. What are the main processes of metal forming?
11. How are metals worked?
12. What is creeping?

3.2 Translate into English:

1. Металлы — плотные материалы потому, что между атомами в металлах малое расстояние.
2. Металлы имеют кристаллическую структуру из-за правильного расположения атомов.
3. Чем меньше зерна, тем тверже металл.
4. Закалка и отжиг изменяют форму и размер зерен в металлах.
5. Легирование изменяет структуру зерен и свойства металлов.
6. Металл деформируется и разрушается из-за усталости и ползучести.

**Контрольный перевод.**

**Переведите отрывки без словаря (письменно).**

**Вариант 1**

Maximum practical arc speed for the definite welding conditions is the main factors since this is necessary to fully use the penetrating action of the arc force.

Since increased arc speed results in increase of the metal deposited there is great economy in money, time, metal and current.

When the arc is moved slowly there is a small pool of molten metal under the arc and the force of the arc is lost in the molten pool instead of penetrating into the parent metal in the groove of the joint.

The molten metal does not fuse below the depth to which the arc penetrates. As we see, in slow arc speed there usually is a small

Pool of molten metal under the arc not providing deep penetration.

Of course, penetration not only depends upon the arc speed but also upon the current provided the arc speed matches the current increase.

### **Вариант 2**

From these facts, it is evident that to get greater penetration the arc should be moved more rapidly rather slowly.

An increase in current increases the arc force and provides deep penetration.

The quality of the weld also depends upon the arc length and the position of the electrode.

When the arc length is too long, heat is lost in the air, much molten metal is also lost in the form of spatter and the force is soared over a large area to give a winder molten pool.

Too short arc, as you know, may result in poor penetration or even short-circuiting.

In conclusion it has been show, that to obtain the highest welding speeds it is necessary to penetrate deeply into the base metal resulting in fusion of parent metal with the weld metal.

The amount of penetration and the economy are proportional to the current used, combining with the effectiveness of the use of arc force.

### **Вариант 3**

Welding can be dangerous. Any of these accidents might happen to you: you could be blinded by sparks; you could get an electric shock, your face, body, arms, legs or feet could be burnt; there could be a fire in the workshop. That's why it's absolutely necessary to wear protective clothing. A mask or helmet must be worn in electric arc welding. In gas welding goggles can be used. Clothes must be kept dry and clean. Thick, heavy boots must be worn. They must be made of some insulating material such as rubber. Gloves, apron and a cap must be worn. Overalls must have long sleeves and no pockets or cuffs. The floor in the workshop is made of concrete. There must be a metal container on the floor for the sparks.

**Перечень вопросов к зачету  
по дисциплине ОГСЭ 03 «Иностранный язык»  
специальность: 15.02.08 «Технология машиностроения»**

Test:

I. Choose the right variant.

1 Will Mr. Cranby... the money to the shop-owner?							
A	to bring	B	carry	C	take	D	bring
2 Where did he... the car?							
A	buys	B	bought	C	buy	D	has bought
3 He has left his purse...							
A	anywhere	B	somewhere	C	everywhere	D	nowhere
4 Mr. Cranby's house was on...							
A	a hill top	B	the hill`s top	C	the top of the hill	D	hills top
5 When someone talks to ... people may think he is mad.							
A	oneself	B	itself	C	yourself	D	himself
6 She is arriving tomorrow, ...?							
A	isn`t she	B	doesn`t she	C	won`t she	D	is she
7 Tell me ... you think about him.							
A	that	B	that what	C	what	D	which
8 Russian people speak... than Italian people.							
A	more slowly	B	slower	C	more slow	D	slowlier
9 ... is dangerous to your health.							
A	Smoke	B	To smoke	C	Smoking	D	A smoke
10 He had nothing...							
A	to sit	B	for sitting	C	to be seated	D	to sit on
11 Let`s go for a drive ... any more.							
A	as it isn`t raining	B	as it doesn`t raining	C	though it doesn`t rain	D	for it isn`t raining
12 At the party he had ... drinks.							
A	any	B	nothing	C	so much	D	too many
13 ... people cannot drive at all.							
A	few	B	a few	C	none	D	some
14 ... driving before buying a car.							
A	There is necessary to learn	B	That is necessary learning	C	It is necessary	D	To is necessary learning

15 ... your coat and hat as it's cold.							
A	Put on	B	Take off	C	Pick up	D	Put up
16 ... in their family likes each other.							
A	All they	B	Both of them	C	Everyone	D	All persons
17 He has visited Canada two times ...							
A	last month	B	this year	C	A year ago	D	in summer
18 When ... study English?							
A	have you begun to	B	you begin to	C	did you begin to	D	did you begun
19 He likes driving and ...							
A	so is she	B	so she likes	C	so does she	D	so likes she
20 This is the film I ...							
A	like it more	B	am liking most	C	most like	D	like most

I.

I. Choose the extra word.

21	A	Girls	B
22	A	Take	B
23	A	Green	B
24	A	Talk	B
25	A	When	B
26	A	Merry	B
27	A	Quickly	B
28	A	Brought	B
29	A	Table	B
30	A	Make	B

I.

## Практические задания

**Задание 1.** Прочитайте текст профессиональной направленности и переведите его на русский язык. Ответьте на вопросы, данные к тексту.

Scientists consider that the oldest tools that are known to the mankind are 2600000 years old. They were used by people in manual operations and that is why they were called hand tools. By the beginning of the Industrial Revolution, people had already made simple hand tools for cutting and shaping different materials. But in the 18<sup>th</sup> century there appeared machine tools that made mass production a reality in the 19<sup>th</sup> century. A machine tool is a power-driven machine that is used to perform different operations with metal or other material. Basic machine tools use mechanical power to bend, cut, and drill metal into desired shapes. More advanced machine tools use such power sources as electrical or chemical, heat, magnetism and ultrasound.

1. How old are the oldest tools?
2. Where were they used by people?
3. Why were they called so?
4. When did the first machine tools appear?
5. What is a machine tool?

**Задание 2.** Прочитайте текст профессиональной направленности и переведите его на русский язык. Ответьте на вопросы, данные к тексту.

Welding can be dangerous. Any of these accidents might happen to you: you could be blinded by sparks; you could get an electric shock, your face, body, arms, legs or feet could be burnt; there could be a fire in the workshop. That's why it's absolutely necessary to wear protective clothing. A mask or helmet must be worn in electric arc welding. In gas welding goggles can be used. Clothes must be kept dry and clean. Thick, heavy boots must be worn. They must be made of some insulating material such as rubber. Gloves, apron and a cap must be worn. Overalls must have long sleeves and no pockets or cuffs. The floor in the workshop is made of concrete. There must be a metal container on the floor for the sparks.

1. Why is welding dangerous?
2. What is necessary to do to protect yourself?
3. Why must you keep clothes dry?
4. What material must boots be made of?
5. Why do you need a metal container on the floor?

**Задание 3.** Прочитайте текст профессиональной направленности и переведите его на русский язык. Ответьте на вопросы, данные к тексту.

Nowadays machine tools play an important role in the manufacture of almost all metal products. Machinists use them in making automobiles, radios, refrigerators, television sets and so on. Every mechanical workshop is equipped with machine tools. They are the main source for the manufacture of component parts of all machines and mechanical devices. There are about 500 kinds of machine tools. Some perform a single operation, such as drilling. Others, called machining centers, carry out several kinds of tasks.

1. Why are machine tools very important nowadays?
2. Where are they used?
3. How many kinds of machine tools are there?
4. What operations do they perform?
5. Why are machining centers called so?



**Задание 4.** Прочитайте текст профессиональной направленности и переведите его на русский язык. Ответьте на вопросы, данные к тексту.

Every mechanical workshop is equipped with machine tools. They are the main source for the manufacture of component parts of all machines and mechanical devices. There are about 500 kinds of machine tools. Some perform a single operation, such as drilling. Others, called machining centers, carry out several kinds of tasks. These numerous machine tool types fall into two categories. The first group is called “metal-cutting”, the second – “metal-forming”. The machine tools of this group remove some material from the workpiece and they are much stronger than the workpiece itself. The examples of metal-cutting machines are lathes and drill presses.

1. What is mechanical shop equipped with?
2. How many kinds of machine tools are there?
3. What operations do they perform?
4. Why are machining centers called so?
5. What machine tools can be called metal-cutting?

**Задание 5.** Прочитайте текст профессиональной направленности и переведите его на русский язык. Ответьте на вопросы, данные к тексту.

Steel is known as an alloy of iron and about 2% or less carbon. Pure iron is soft, ductile and malleable, useful only as an ornamental material. However, the addition of carbon hardens it greatly and changes its properties. Steels for special applications may contain other alloying elements beside carbon. This modifies and improves the physical properties of the base steel. For example, small percentages of nickel, chromium, manganese and vanadium may be used for strengthening steels for construction work. Heat treatment and mechanical working at cold or hot temperatures may also give steel alloys superior qualities, such as strength, hardness, toughness, wear resistance, corrosion resistance, electrical resistivity and workability.

1. What is steel?
2. How does the addition of carbon modify steel?
3. What may steel for special applications contain?
4. Where is it used?
5. What qualities may heat treatment and mechanical working give steel alloys?

**Задание 6.** Прочитайте текст профессиональной направленности и переведите его на русский язык. Ответьте на вопросы, данные к тексту.

The value of alloys was discovered in very ancient times. Brass and bronze were especially important. Today the most important are alloy steels, which have a lot of special characteristics. Steel is known as an alloy of iron and about 2% or less carbon. Steel making processes are known as melting, purifying and alloying at about 2900 F. Molten steel may be first cast into ingots. Later ingots are worked into finished products. This may be done by two major methods: hot-working and cold-working. The latter is generally used for making bars, wires, tubes, sheets and strips. Molten steel may also be cast directly into products.

1. What alloys were especially important in very ancient times?
2. What alloy is the most important today?
3. What is steel?
4. What are steel making processes?
5. What is molten steel used for?

**Задание 7.** Прочитайте текст профессиональной направленности и переведите его на русский язык. Ответьте на вопросы, данные к тексту.

The workability and the ability for corrosion resistance made copper, bronze and brass the most important functional as well as decorative materials from the Middle Ages and on till present days. With the beginning of the Electrical Age the demand for copper increased tremendously because it is an unusually good conductor of electricity and heat. Today more than 5 million tons of copper are produced annually and the copper metals are playing an increasingly vital part in all branches of modern technology.

1. What made copper, bronze and brass the most important functional and decorative materials?
2. When did the demand for copper increase?
3. Why did it increase?
4. How much copper is produced annually?
5. Are the copper metals are playing an increasingly vital part in modern technology?

**Задание 8.** Прочитайте текст профессиональной направленности и переведите его на русский язык. Ответьте на вопросы, данные к тексту.

Steels vary greatly but the major classes are carbon steels, low-alloy steels and high-alloy steels. Tool steels are special steels that are engineered to particular service requirements. These expensive alloys are exceptionally strong, hard, wear-resistant, tough, and nonreactive to local overheating. They contain tungsten, molybdenum, vanadium and chromium in different combinations, and often cobalt or nickel for better high-temperature performance. They are used for machine tools, aircraft undercarriages, in buildings and bridges.

1. What are the major classes of steel?
2. What is tool steel?
3. What characteristics do tool steels have?
4. What do they contain?
5. Where are they used?

**Перечень вопросов к дифференцированному зачету  
по дисциплине ОГСЭ 03 «Иностранный язык»  
специальность: 15.02.08 «Технология машиностроения»**

**Вопросы к зачёту**

1. Расскажите об английской артикуляции, фонетическом строе английского языка, приведите примеры.
2. Расскажите о структуре простого предложения в английском языке, приведите примеры.
3. Расскажите о видовременной группе настоящее время в английском языке, приведите примеры.
4. Расскажите о местоимениях (личных притяжательных, указательных, вопросительных) в английском языке, приведите примеры.
5. Расскажите о типах вопросов в английском языке, приведите примеры.
6. Расскажите об артиклях (определённом, неопределённом, нулевом) в английском языке, приведите примеры.
7. Расскажите о видовременной группе прошедшее время в английском языке, приведите примеры.
8. Расскажите о видовременной группе будущее время в английском языке, приведите примеры.

9. Расскажите о техническом английском, особенностях технического перевода с английского языка, приведите примеры
10. Расскажите о терминологии, способах образования новых терминов, основных типах словарей в английском языке, приведите примеры.
11. Расскажите об образовании множественного числа существительных в английском языке, приведите примеры.
12. Расскажите о правилах образования числительных (порядковых, количественных) в английском языке, приведите примеры.
13. Расскажите об употреблении оборота there is ... there are в английском языке, приведите примеры.
14. Расскажите об образовании страдательного залога в английском языке, приведите примеры.
15. Расскажите о модальных глаголах в английском языке, приведите примеры.
16. Расскажите об исчисляемых/ неисчисляемых существительных в английском языке, приведите примеры.
17. Расскажите о повелительном наклонении глагола в английском языке, приведите примеры.
18. Расскажите о фразовых глаголах в английском языке, приведите примеры.
19. Расскажите о модальных глаголах might, may, could, must в английском языке, приведите примеры.
20. Расскажите о модальных глаголах can /can't в английском языке, приведите примеры.

### **Практические задания**

**Прочитайте текст профессиональной направленности (по вариантам) и переведите его на русский язык. Задайте не менее 7 вопросов к тексту.**

#### **Text 1 «Metals»**

Metals are materials most widely used in industry because of their properties. The study of the production and properties of metals is known as metallurgy.

The separation between the atoms in metals is small, so most metals are dense. The atoms are arranged regularly and can slide over each other. That is why metals are malleable (can be deformed and bent without fracture) and ductile (can be drawn into wire). Metals vary greatly in their properties. For example, lead is soft and can be bent by hand, while iron can only be worked by hammering at red heat.

The regular arrangement of atoms in metals gives them crystalline structure. Irregular crystals are called grains. The properties of the metals depend on the size, shape, orientation, and composition of these grains. In general, a metal with small grains will be harder and stronger than one with coarse grains.

Heat treatment such as quenching, tempering, or annealing controls the nature of the grains and their size in the metal. Small amounts of other metals (less than 1 per cent) are often added to a pure metal. This is called alloying (легирование) and it changes the grain structure and properties of metals.

All metals can be formed by drawing, rolling, hammering and extrusion, but some require hot-working. Metals are subject to metal fatigue and to creep (the slow increase in length under stress) causing deformation and failure. Both effects are taken into account by engineers when designing, for example, airplanes, gas-turbines, and pressure vessels for high-temperature chemical processes. Metals can be worked using machine-tools such as lathe, milling machine, shaper and grinder.

The ways of working a metal depend on its properties. Many metals can be melted and cast in moulds, but special conditions are required for metals that react with air.

### **Text 2 «Steel»**

The most important metal in industry is iron and its alloy- steel. Steel is an alloy of iron and carbon. It is strong and stiff, but corrodes easily through rusting, although stainless and other special steels resist corrosion. The amount of carbon in a steel influences its properties considerably. Steels of low carbon content (mild steels) are quite ductile and are used in the manufacture of sheet iron, wire, and pipes. Medium-carbon steels containing from 0.2 to 0.4 per cent carbon are tougher and stronger and are used as structural steels. Both mild and medium-carbon steels are suitable for forging and welding. High-carbon steels contain from 0.4 to 1.5 per cent carbon, are hard and brittle and are used in cutting tools, surgical instruments, razor blades and springs. Tool steel, also called silver steel, contains about 1 per cent carbon and is strengthened and toughened by quenching and tempering.

The inclusion of other elements affects the properties of the steel. Manganese gives extra strength and toughness. Steel containing 4 per cent silicon is used for transformer cores or electromagnets because it has large grains acting like small magnets. The addition of chromium gives extra strength and corrosion resistance, so we can get rust-proof steels. Heating in the presence of carbon or nitrogen-rich materials is used to form a hard surface on steel (case-hardening). High-speed steels, which are extremely important in machine-tools, contain chromium and tungsten plus smaller amounts of vanadium, molybdenum and other metals. Quenching is a heat treatment when metal at a high temperature is rapidly cooled by immersion in water or oil. Quenching makes steel harder and more brittle, with small grains structure. Tempering is a heat treatment applied to steel and certain alloys. Hardened steel after quenching from a high temperature is too hard and brittle. Tempering, that is re-heating to an intermediate temperature and cooling slowly, reduces this hardness and brittleness. Tempering temperatures depend on the composition of the steel but are frequently between 100 and 650°C. Higher temperatures usually give a softer, tougher product. The colour of the oxide film produced on the surface of the heated metal often serves as the indicator of its temperature.

Annealing is a heat treatment in which a material at high temperature is cooled slowly. After cooling the metal again becomes malleable and ductile (capable of being bent many times without cracking)

All these methods of steel heat treatment are used to obtain steels with certain mechanical properties for certain needs.

### **Text 3 «Methods of steel heat treatment»**

Quenching is a heat treatment when metal at a high temperature is rapidly cooled by immersion in water or oil. Quenching makes steel harder and more brittle, with small grains structure. Tempering is a heat treatment applied to steel and certain alloys. Hardened steel after quenching from a high temperature is too hard and brittle for many applications and is also brittle. Tempering, that is re-heating to an intermediate temperature and cooling slowly, reduces this hardness and brittleness. Tempering temperatures depend on the composition of the steel but are frequently between 100 and 650°C. Higher temperatures usually give a softer, tougher product. The colour of the oxide film produced on the surface of the heated metal often serves as the indicator of its temperature.

Annealing is a heat treatment in which a material at high temperature is cooled slowly. After cooling the metal again becomes malleable and ductile (capable of being bent many times without cracking)

All these methods of steel heat treatment are used to obtain steels with certain mechanical properties for certain needs.

#### **Text 4 «Metalworking processes»**

Metals are important in industry because they can be easily deformed into useful shapes. A lot of metalworking processes have been developed for certain applications. They can be divided into five broad groups:

1. rolling
2. extrusion
3. drawing
4. forging
5. sheet-metal forming.

During the first four processes metal is subjected to large amounts of strain (deformation). But if deformation goes at a high temperature, the metal will recrystallize- that is, new strain-free grains will grow instead of deformed grains. For this reason metals are usually rolled, extruded, drawn, or forged above their recrystallization temperature. This is called hot working. Under these conditions there is no limit to the compressive plastic strain to which the metal can be subjected. Other processes are performed below the recrystallization temperature. These are called cold working. Cold working hardens metal and makes the part stronger. However, there is a limit to the strain before a cold part cracks.

##### **Rolling**

Rolling is the most common metalworking process. More than 90 percent of the aluminum, steel and copper produced is rolled at least once in the course of production. The most common rolled product is sheet. Rolling can be done either hot or cold. If the rolling is finished cold, the surface will be smoother and the product stronger.

##### **Extrusion**

Extrusion is pushing the billet to flow through the orifice of a die. Products may have either a simple or a complex cross section. Aluminium window frames are the examples of complex extrusions. Tubes or other hollow parts can also be extruded. The initial piece is a thick-walled tube, and the extruded part is shaped between a die on the outside of the tube and a mandrel held on the inside. In impact extrusion (also called back-extrusion) (Штамповка выдавливанием), the workpiece is placed in the bottom of a hole and a loosely fitting ram is pushed against it. The ram forces the metal to flow back around it, with the gap between the ram and the die determining the wall thickness. The example of this process is the manufacturing of aluminum beer cans.

#### **Text 5 «Metalworking and metal properties»**

An important feature of hot working is that it provides the improvement of mechanical properties of metals. Hot-working (hot-rolling or hot-forging) eliminates porosity, directionality, and segregation that are usually present in metals. Hot-worked products have better ductility and toughness than the unworked casting. During the forging of a bar, the grains of the metal become greatly elongated in the direction of flow. As a result, the toughness of the metal is greatly improved in this direction and weakened in directions transverse to the flow. Good forging makes the flow lines in the finished part oriented so as to lie in the direction of maximum stress when the part is placed in service.

The ability of a metal to resist thinning and fracture during cold-working operations plays an important role in alloy selection. In operations that involve stretching, the best alloys are those which grow stronger with strain (are strain hardening) – for example, the copper-zinc alloy, brass, used for cartridges and the aluminum-magnesium alloys in beverage cans, which exhibit greater strain hardening.

Fracture of the workpiece during forming can result from inner flaws in the metal. These flaws often consist of nonmetallic inclusions such as oxides or sulfides that are trapped in the metal during refining. Such inclusions can be avoided by proper manufacturing procedures. The ability of different metals to undergo strain varies. The change of the shape after one forming operation is often limited by the tensile ductility of the metal. Metals such as copper and aluminum are more ductile in such operations than other metals.

## **Text 6 «Welding»**

Welding is a process when metal parts are joined together by the application of heat, pressure, or a combination of both. The processes of welding can be divided into two main groups:

- pressure welding, when the weld is achieved by pressure and
- heat welding, when the weld is achieved by heat. Heat welding is the most common welding process used today.

Nowadays welding is used instead of bolting and riveting in the construction of many types of structures, including bridges, buildings, and ships. It is also a basic process in the manufacture of machinery and in the motor and aircraft industries. It is necessary almost in all productions where metals are used.

The welding process depends greatly on the properties of the metals, the purpose of their application and the available equipment. Welding processes are classified according to the sources of heat and pressure used: gas welding, arc welding, and resistance welding. Other joining processes are laser welding, and electron-beam welding.

**Gas Welding.** Gas welding is a non-pressure process using heat from a gas flame. The flame is applied directly to the metal edges to be joined and simultaneously to a filler metal in the form of wire or rod, called the welding rod, which is melted to the joint. Gas welding has the advantage of using equipment that is portable and does not require an electric power source. The surfaces to be welded and the welding rod are coated with flux, a fusible material that shields the material from air, which would result in a defective weld.

**Arc Welding.** Arc-welding is the most important welding process for joining steels. It requires a continuous supply of either direct or alternating electrical current. This current is used to create an electric arc, which generates enough heat to melt metal and create a weld.

Arc welding has several advantages over other welding methods. Arc welding is faster because the concentration of heat is high. Also, fluxes are not necessary in certain methods of arc welding. The most widely used arc-welding processes are shielded metal arc, gas-tungsten arc, gas-metal arc, and submerged arc.