Министерство науки и высшего образования РФ
Федеральное государственное бюджетное образовательное учреждение высшего образования
«Заполярный государственный университет им. Н. М. Федоровского»
ЗГУ

ФОНД ОЦЕНОЧНЫХ СРЕДСТВ
по дисциплине

«Профессиональный иностранный язык»

Факультет: ГТФ

Направление подготовки: 22.03.02 «Металлургия»

Направленность (профиль): «Прогрессивные методы получения цветных металлов»

Уровень образования: бакалавриат
Кафедра «Металлургии, машин и оборудования»
наименование кафедры

Разработчик ФОС:

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(должность, степень, ученое звание)	(подпись)	(ФИО)

Оценочные материалы по дисциплине рассмотрены и одобрены на заседании кафедры, протокол № 2 от « 07 » 05 2025 г.
Заведующий кафедрой к.т.н., доцент Крупнов Л.В.

Перечень планируемых результатов обучения по дисциплине (модулю), соотнесенных с планируемыми результатами образовательной программы

Таблица 1 – Компетенции и индикаторы их достижения

Код и наименование компетенции	Индикаторы достижения
УК-4: Способен осуществлять деловую коммуникацию в устной и письменной формах на государственном языке Российской Федерации и иностранном(ых) языке(ах)	УК-4.1: Демонстрирует умение вести обмен деловой информацией в устной и письменной формах на государственном языке и иностранном(ых) языке(ах) с учетом особенностей стилистики официальных и неофициальных писем и социокультурных различий УК-4.2: Выбирает стиль общения в зависимости от цели и условий партнерства; адаптирует речь, стиль общения и язык жестов к ситуациям взаимодействия

Таблица 2 – Паспорт фонда оценочных средств

Контролируемые разделы (темы) дисциплины	**Формируемая компетенция**	**Наименование оценочного средства**	**Показатели оценки**
Основы металлургии. Металлы и их классификация.	УК-4	Тестовые задания	Решение всех тестовых заданий по темам
Обогащение руд цветных металлов.	УК-4	Тестовые задания	Решение всех тестовых заданий по темам
Принципы и методы металлургии. Продукты и полупродукты металлургического производства.	УК-4	Тестовые задания	Решение всех тестовых заданий по темам
Металлургия тяжелых цветных металлов:меди,никеля.	УК-4	Тестовые задания	Решение всех тестовых заданий по темам
Металлургия тяжелых цветных металлов:свинца и цинка.	УК-4	Тестовые задания	Решение всех тестовых заданий по темам
Металлургия благородных металлов.	УК-4	Тестовые задания	Решение всех тестовых заданий по темам
Металлургия легких металлов: алюминия, магния, титана.	УК-4	Тестовые задания	Решение всех тестовых заданий по темам

Металлургия редких металлов: вольфрама, молибдена.	УК-4	Тестовые задания	Решение всех тестовых заданий по темам
Зачет	УК-4	Решение всех тестовых заданий по темам	Решение всех тестовых заданий по темам

1. **Методические материалы, определяющие процедуры оценивания знаний, умений, навыков и (или) опыта деятельности, характеризующие процесс формирования компетенций**

Методические материалы, определяющие процедуры оценивания знаний, умений, навыков и (или) опыта деятельности, представлены в виде технологической карты дисциплины (таблица 3).

Таблица 3 – Технологическая карта

	Наименование оценочного средства	**Сроки выполнения**	**Шкала оценивания**	**Критерии оценивания**
Промежуточная аттестация в форме «Зачета»				
	Тестовые задания	В течении обучения по дисциплине	от 0 до 5 баллов	Зачет/Незачет
ИТОГО:		-	___ баллов	-
Критерии оценки результатов обучения по дисциплине: Пороговый (минимальный) уровень для аттестации в форме зачета – 75 % от максимально возможной суммы баллов Зачет выставляется при сдаче студентом всех тестовых заданий				

Типовые контрольные задания или иные материалы, необходимые для оценки знаний, умений, навыков и (или) опыта деятельности, характеризующие процесс формирования компетенций в ходе освоения образовательной программы

Для очной, очно-заочной формы обучения
Задания для текущего контроля и сдачи дисциплины

ОЦЕНОЧНОЕ СРЕДСТВО *(тестирование)*	**Контролируемая компетенция**
Вариант 1	
1. The deposits are being explored by a Russian government-___ company. a) uncontrolled; b) controlled; c) controlling; d) control	**УК-3**

2. They are able to image the ___ nickel ore at depths in excess of 1.800 m. a) conduct; b) conductive; c) conducted; d) conductivity	**УК-3**
3. There is ___ interesting information about the internal structure of the Earth. a) some; b) somebody; c) nothing; d) any	**УК-3**
4. There are ___ causes of weathering. a) much; b) a little; c) many; d) each	**УК-3**
5. It is supposed that gold ___ the first of all the metals ever used by man. a) were; b) have been; c) is being; d) was	**УК-3**
6. Most of the early gold ___ from stream beds rather than from mines. a) came; b) have come; c) is coming; d) is being come	**УК-3**
7. The study of the production and properties of metals ___ as metallurgy. a) was being known; b) is known; c) have been known; d) had knew	**УК-3**
8. The atoms ___ regularly and can slide over each other. a) are arranged; b) are arranging; c) had been arranged; d) is arranged	**УК-3**

9. The problem ___ concerns new alloys. a) to discuss; b) discussing; c) discussed; d) being discussed	**УК-3**
10. In ___ fuels give off heat which is used for different purposes. a) burnt; b) to burn; c) have been burnt; d) burning	**УК-3**
11. Medium-carbon steels ___ from 0.2 to 0.4 per cent carbon are tougher and stronger. a) contained; b) containing; c) to contain; d) being contained	**УК-3**
12. ___ a nickel ore the geologists must know how the nickel is distributed. a) to estimate; b) being estimated; c) estimated; d) estimating	**УК-3**
13. The quality of the metal ___ be determined without taking samples. a) should; b) is allowed; c) can; d) has to	**УК-3**
14. Unless properties of the alloy ___ carefully, metallurgists cannot be sure of their origin. a) were studied; b) had been studied; c) would be studied; d) are studied	**УК-3**
15. I ___ it possible, if I hadn't seen it happen. a) had believed; b) would have believed;	**УК-3**

c) would believe; d) believed	
16. ___ is known to be composed of atoms and molecules. a) matter; b) structure; c) property; d) proving	**УК-3**
17. ___ is a heat treatment when metal at a high temperature is rapidly cooled by immersion in water or oil. a) forging; b) quenching; c) welding; d) hardening	**УК-3**
18. Heat treatment applied to steel and certain alloys is called ___. a) toughening; b) welding; c) tempering; d) handling	**УК-3**
19. Hardened steel after quenching from a high temperature is too hard and ___. a) rusty; b) stiff; c) stainless; d) brittle	**УК-3**
20. Brass has good ___ (it means it is easy to shape) and acoustic properties. a) malleability; b) overburden removal; c) forging; d) ore concentration	**УК-3**
21. The relatively low ___ of brass and its flow characteristics make it an easy material to shape. a) stainless; b) handling; c) melting point; d) reclamation	**УК-3**
22. ***Определите, какое утверждение соответствует содержанию текста?*** a) An alloy is a non-metallic substance, and it is a single chemical element.	**УК-3**

b) A metal is a chemical element that has metallic lustre and which in electrolysis carries a negative charge and is liberated at the cathode. c) The chemical elements are divided into metals and non-metals, but there is no sharp dividing line between the two groups. d) A metal is a chemical element that has metallic lustre and which in electrolysis carries a positive charge and is liberated at the anode. **METALLURGY** It may be said that metallurgy is one of the oldest of arts but one of the youngest of sciences. Many of metals were known in ancient times and many practical uses were made of those metals, but it is only within the last century or two that the knowledge of the properties of the metals has made it possible to apply them in industrial purposes. Metallurgy includes all phases of working with metals as raw materials and it falls into three divisions: chemical or extractive, physical, and mechanical. Chemical metallurgy includes the metallurgical properties involving chemical change and embraces chiefly the methods of production and refining. Physical metallurgy deals with the nature, structure and physical properties of metals and alloys. Mechanical metallurgy includes the processes of corking and shaping metals. The chemical elements are divided into metals and non-metals, but there is no sharp dividing line between the two groups. Elements whose properties are on the border between metals and non-metals are called metalloids. A metal is a chemical element that has metallic lustre and which in electrolysis carries a positive charge and is liberated at the cathode. Most nonmetallic elements do not possess metallic lustre; in electrolysis the non-metals carry negative charges and are liberated at the anode. Metals are also characterized by high conductivity, and most metals possess higher density, strength, malleability, and ductility than most non-metals. An alloy is a metallic substance, but it is not a single chemical element. It is formed by the union or mixture of two or more metals, or it may consist of one or more metals and non-metals. For example, iron and carbon basically form the alloy called steel, and copper and zinc form brass. Out of the ninety two natural chemical elements about 70 are metals, and of these about 39 are used commercially.	
23. ***Завершите утверждение согласно содержанию текста.*** Elements whose properties are on the border between metals and non-metals are called … a) metalloids. b) metals. c) metallic and non-metallic ore minerals. d) alloys **METALLURGY** It may be said that metallurgy is one of the oldest of arts but one of the youngest of sciences. Many of metals were known in ancient times	**УК-3**

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24. ***Ответьте на вопрос:*** What are the groups metallurgy can be divided into? a) Metallurgy can be divided into corking and shaping metals. b) Metallurgy can be divided into metals and non-metals. c) Metallurgy can be divided into conductivity, density, strength, malleability, and ductility. d) Metallurgy can be divided into chemical or extractive, physical, and mechanical. **METALLURGY** It may be said that metallurgy is one of the oldest of arts but one of the youngest of sciences. Many of metals were known in ancient times and many practical uses were made of those metals, but it is only within the last century or two that the knowledge of the properties of the metals has made it possible to apply them in industrial purposes. Metallurgy includes all phases of working with metals as raw materials and it falls into three divisions: chemical or extractive, physical, and mechanical. Chemical metallurgy includes the metallurgical properties involving chemical change and embraces chiefly the methods of production and refining. Physical metallurgy deals with the nature,	**УК-3**

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Вариант 2	
1. They can be hammered or pressed ___ out of shape without breaking or cracking. a)permanent; b) permanently; c)permanence; d) permanenting	**УК-3**
2. Blatant exceptions are largely oxides with very high ___ states. a) oxiding; b) oxide; c) oxided; d) oxidation	**УК-3**
3. ___ metals adopt both structures depending on the temperature. a) any; b) no; c) some; d) every	**УК-3**
4. As is known, only ___ minerals are resistant to the action of natural waters. a) few; b) any; c) little; d) no	**УК-3**
5. Among the more obvious distinctions between different kinds of elements is that which ___ metals and non-metals. a) divides; b) will divide; c) have divided; d) divide	**УК-3**

6. Non-metals ___ an even greater variety of chemical properties than do the metals. a) are showing; b) are having shown; c) show; d) will show	**УК-3**
7. The common metals such as iron, copper, zinc, lead, etc., ___ in great quantities. a) was been; b) are produced; c) is being; d) had been	**УК-3**
8. Some metals ___ from the Earth's crust since the pre-historic times. a) had been deriving; b) were being derived; c) derived; d) have been derived	**УК-3**
9. ___ to pressure, heat and chemically active fluids, various metals undergo changes. a) being subjected; b) to have been subjected; c) subjecting; d) to subject	**УК-3**
10. ___ gaseous fuels makes it possible to obtain high thermal efficiency, ease of distribution and control. a) to use; b) used; c) using; d) being used	**УК-3**
11. ___ Mendeleyev's table one may predict properties of unknown elements. a) used; b) using; c) to use; d) being used	**УК-3**
12. Among the most important effects of heat is that of ___ the state of a substance from solid to liquid, or from liquid to vapour. a) changing; b) being changing; c) having changed; d) being changed	**УК-3**

13. One ___ assume this information to be correct. a) can; b) must; c) are able to; d) may	**УК-3**
14. If the mass of magma ___ large, the rate of cooling will be slow. a) will be; b) would be; c) was; d) is	**УК-3**
15. They would have developed the alloy by now if they ___ the chance to use the latest equipment. a) were having; b) would have; c) had had; d) had	**УК-3**
16. ___ is a heat treatment in which a material at high temperature is cooled slowly. a) annealing; b) cracking; c) exploring; d) welding	**УК-3**
17. The process in which metals are rolled, extruded, drawn or forged above their recrystallization temperature is called ___. a) forging; b) hot working; c) tempering; d) mill working	**УК-3**
18. During the first four processes metal is subjected to large amounts of ___. a) stress; b) mining; c) rolling; d) strain	**УК-3**
19. The ___ was formed 250 million years ago during the eruption of the Siberian Traps igneous province. a) stripping; b) providing; c) preparing; d) deposit	**УК-3**

20. ___ can be used in soft or friable ground. a) hydraulicking; b) watering; c) dewatering; d) consuming	**УК-3**
21. Cold working ___ metal and makes the part stronger. a) forces; b) mines; c) hardens; d) brittles	**УК-3**
22. ***Определите, какое утверждение соответствует содержанию текста?*** a) The chemical elements are divided into metals and non-metals, but there is no sharp dividing line between the two groups. b) A metal is a chemical element that has metallic lustre and which in electrolysis carries a positive charge and is liberated at the anode. c) An alloy is a non-metallic substance, and it is a single chemical element. d) A metal is a chemical element that has metallic lustre and which in electrolysis carries a negative charge and is liberated at the cathode. **METALLURGY** It may be said that metallurgy is one of the oldest of arts but one of the youngest of sciences. Many of metals were known in ancient times and many practical uses were made of those metals, but it is only within the last century or two that the knowledge of the properties of the metals has made it possible to apply them in industrial purposes. Metallurgy includes all phases of working with metals as raw materials and it falls into three divisions: chemical or extractive, physical, and mechanical. Chemical metallurgy includes the metallurgical properties involving chemical change and embraces chiefly the methods of production and refining. Physical metallurgy deals with the nature, structure and physical properties of metals and alloys. Mechanical metallurgy includes the processes of corking and shaping metals. The chemical elements are divided into metals and non-metals, but there is no sharp dividing line between the two groups. Elements whose properties are on the border between metals and non-metals are called metalloids. A metal is a chemical element that has metallic lustre and which in electrolysis carries a positive charge and is liberated at the cathode. Most nonmetallic elements do not possess metallic lustre; in electrolysis the non-metals carry negative charges and are liberated at the anode. Metals are also characterized by high conductivity, and most metals possess higher density, strength, malleability, and ductility than most non-metals.	**УК-3**

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Вариант 3	
1. Plating metals is a good way to prevent their ___. a) corrosing; b) corrosed; c) corrosion; d) corrose	**УК-3**
2. Coals ___ by the decay of organic materials. a) unstratify; b) stratify; c) stratification; d) stratified	**УК-3**

3. Igneous rocks, more than ___ other kind of rocks show that the Earth is still changing. a) no; b) some; c) any; d) few	**УК-3**
4. Copper alloys have been known since prehistory and have ___ applications today. a) many; b) few; c) a few; d) a little	**УК-3**
5. A metal is a material that is typically hard, opaque, shiny, and ___ good electrical and thermal conductivity. a) had; b) has been had; c) was; d) has	**УК-3**
6. In addition, many elements and compounds that are not normally classified as metals ___ metallic under high pressures. a) become; b) have became; c) is becoming; d) becomed	**УК-3**
7. The ore ___ underground via several shafts, and a decline. a) is mining; b) has being mined; c) is being mined; d) is mined	**УК-3**
8. The ore deposits currently ___ at more than 1.200 m below ground. a) is extracted; b) extract; c) are being extracted; d) has been extracted	**УК-3**
9. The ore was formed when the erupting magma became saturated in sulfur, ___ globules of pentlandite, chalcopyrite, and other sulfides. a) to form; b) forming; c) being formed; d) formed	**УК-3**

10. These sulfides were then "washed" by the ___ torrent of erupting magma. a) continued; b) continuing; c) having continuing; d) to continue	**УК-3**
11. The current resource known for these___intrusion exceeds 1.8 billion tons. a) mineralized; b) being mineralized; c) mineralizing; d) having been mineralized	**УК-3**
12. The search for economically useful mineral deposits is called ___. a) being prospecting; b) prospected; c) having prospected; d) prospecting	**УК-3**
13. Metallic substances ___ easily transmit heat and electricity. a) should; b) may; c) has to; d) can	**УК-3**
14. If the flow of electrons occurs, the solid characteristic of the metal ___ by electrostatic interactions between each atom and the electron cloud. a) was produced; b) is produced; c) have been produced; d) were being produced	**УК-3**
15. If geological conditions had permitted, efficient coal face operations ___ possible. a) would have been; b) would be; c) were; d) are	**УК-3**
16. The property of being hammered or pressed permanently out of shape without breaking or cracking is called ___. a) prospecting; b) exploring; c) drilling; d) malleability	**УК-3**

17. Sediments formed by the decay of the remains of the organisms, by the accumulation of plant relicts are called ___. a) metamorphic; b) consolidated; c) organic; d) dissolved	**УК-3**
18. Minerals can often be ___ directly by earth-moving equipment. a) broken; b) handled; c) dug; d) washed	**УК-3**
19. Metals are usually inclined to react with oxygen in the air to form ___. a) waste; b) oxides; c) tails; d) extrusion	**УК-3**
20. Large near-surface deposits offer the possibility of achieving greater ___. a) outputs; b) efficiency; c) metals; d) minerals	**УК-3**
21. The ___ metals (such as iron, copper, zinc, and nickel) are slower to oxidize because they form a passivating layer of oxide that protects the interior. a) open-casted; b) explored; c) lifted; d) transition	**УК-3**
22. ***Определите, какое утверждение соответствует содержанию текста?*** a) An alloy is a non-metallic substance, and it is a single chemical element. b) The chemical elements are divided into metals and non-metals, but there is no sharp dividing line between the two groups. c) A metal is a chemical element that has metallic lustre and which in electrolysis carries a negative charge and is liberated at the cathode. d) A metal is a chemical element that has metallic lustre and which in electrolysis carries a positive charge and is liberated at the anode.	**УК-3**

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23. ***Завершите утверждение согласно содержанию текста.*** Elements whose properties are on the border between metals and non-metals are called… a) metallic and non-metallic ore minerals. b) metals. c) metalloids. d) alloys **METALLURGY** It may be said that metallurgy is one of the oldest of arts but one of the youngest of sciences. Many of metals were known in ancient times and many practical uses were made of those metals, but it is only within the last century or two that the knowledge of the properties of the metals has made it possible to apply them in industrial purposes. Metallurgy includes all phases of working with metals as raw materials and it falls into three divisions: chemical or extractive, physical, and mechanical. Chemical metallurgy includes the metallurgical	**УК-3**

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Вариант 4	
1. Metals in general have high electrical ___. a) conductive; b) conduct; c) conducting; d) conductivity	**УК-3**
2. As a result of different changes vegetable remains are ___ and changed into peat or coal. a) stratify; b) stratification; c) stratified; d) unstratified	**УК-3**
3. In ___ cases nickel can be very dangerous for health. a) some; b) any; c) no; d) a little	**УК-3**
4. A new metallurgical map of the region will appear in a ___ years. a) little; b) few; c) many; d) some	**УК-3**
5. Metals, like palladium, platinum and gold, ___ with the atmosphere at all. a) do not react; b) are not reacted; c) did not react; d) does not react	**УК-3**
6. Some metals ___ both structures depending on the temperature. a) is adopting; b) have adopted; c) had adopted; d) adopt	**УК-3**

7. Metals usually ___ to form cations through electron loss. a) were inclined; b) was inclined; c) are inclined; d) have been inclined	**УК-3**
8. Many years ago the science of metallurgy ___ to explain the occurrence of ore deposits. a) was being used; b) was used; c) had been used; d) was using	**УК-3**
9. ___ the quality and quantity of a mineral deposit is called proving. a) to establish; b) establishing; c) having been established; d) established	**УК-3**
10. The process ___ is called welding. a) describing; b) having described; c) to describe; d) described	**УК-3**
11. ___ metals is a good way to prevent their corrosion. a) having anodized; b) being anodizing; c) anodizing; d) anodized	**УК-3**
12. Typically metals are malleable and ductile, deforming under stress without ___. a) cleaved; b) having cleaving; c) cleaving; d) to cleave	**УК-3**
13. A more reactive metal in the electrochemical series ___ be chosen for coating. a) must; b) can; c) may; d) should	**УК-3**

14. We really will not survive unless we ___ working on cleaner, safer sources of energy. a) would start; b) start; c) started; d) had started	**УК-3**
15. If he ___ here, I would explain the principles of safety in metallurgical work. a) will be; b) were; c) was; d) had been	**УК-3**
16. A ___ is a material that is typically hard, opaque, shiny, and has good electrical and thermal conductivity. a) matter; b) property; c) metal; d) deposit	**УК-3**
17. The forces action of which depends on the energy received by our planet from the Sun are called ___. a) external; b) internal; c) extrusive; d) intrusive	**УК-3**
18. Mineral is usually ___ at specially equipped permanent stations. a) dumped; b) pumped; c) used; d) unloaded	**УК-3**
19. ___ methods produce some disturbances on the Earth's surface which reduce the economic value. a) dumping; b) extraction; c) waste; d) original	**УК-3**
20. In recent years Russia has developed national programs for ___ protection. a) washing; b) overburden; c) environmental; d) sidecasting	**УК-3**

21. Some ___ can be extracted by open-cast method. a) deposits; b) wastes; c) units; d) dumps	**УК-3**
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Вариант 5	
1. In chemistry, the term base metal is used ___ to refer to a metal that oxidizes or corrodes relatively easily. a) informally; b) formally; c) formal; d) information	**УК-3**
2. They are called so because they are composed of loose ___ particles. a) uncemented; b) cementation; c) cemented; d) uncement	**УК-3**
3. Do you have ___ books on metallurgy? a) a few; b) some; c) few;	**УК-3**

d) any	
4. ___ depends on the change of temperature in melting process. a) any; b) much; c) many; d) nothing	**УК-3**
5. People ___ metal for a long time. a) use; b) are being used; c) have used; d) are using	**УК-3**
6. The word *fossil* originally ___ to anything that was dug from the ground. a) had referred; b) have referred; c) was referred; d) referred	**УК-3**
7. The data ___ from the exploratory workings now. a) is being obtained; b) have been obtained; c) has been obtained; d) is obtained	**УК-3**
8. Most minerals ___ from surface deposits. a) have been extracted; b) are extracted; c) are being extracted; d) have extracted	**УК-3**
9. ___ work includes three stages. a) having prospected; b) prospecting; c) to prospect; d) having been prospected	**УК-3**
10. These minerals cause the rock ___. a) splitting; b) split; c) being split; d) to split	**УК-3**

11. These sulfides were then "washed" by the continuing torrent of ___ magma. a) to erupt; b) erupted; c) erupting; d) having erupting	**УК-3**
12. ___ is considered to be the principle working method. a) rolling; b) being rolled; c) having rolled; d) rolled	**УК-3**
13. In terms of optical properties, metals ___ be shiny and lustrous. a) should; b) must; c) might; d) can	**УК-3**
14. If you learned the metallurgical methods, you ___ the job easily. a) finded; b) found; c) would founded; d) would find	**УК-3**
15. The metallurgists would have applied hot rolling if conditions ___. a) permit; b) permitted; c) had permitted; d) was permitted	**УК-3**
16. ___ are those which have low density, low hardness, and low melting points. a) light metals; b) hard metals; c) strong metals; d) mighty metals	**УК-3**
17. ___ is the capacity for plastic deformation. a) malleability; b) ductility; c) density; d) conductivity	**УК-3**

18. Metallurgy is a branch of industry which deals with the ___ of valuable metals from the minerals of the Earth. a) rate; b) characteristics; c) solidification; d) recovery	**УК-3**
19. ___ minerals are those which have economic importance and include metallic and non-metallic minerals. a) ore; b) low-cost; c) economic; d) iron	**УК-3**
20. One must take into consideration the type of ore and the ___ of metal in the ore body. a) overburden; b) intrusion; c) distribution; d) shrinkage	**УК-3**
21. In terms of optical properties, metals are shiny and ___. a) lustrous; b) hard; c) malleable; d) opaque	**УК-3**
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properties are on the border between metals and non-metals are called metalloids. A metal is a chemical element that has metallic lustre and which in electrolysis carries a positive charge and is liberated at the cathode. Most nonmetallic elements do not possess metallic lustre; in electrolysis the non-metals carry negative charges and are liberated at the anode. Metals are also characterized by high conductivity, and most metals possess higher density, strength, malleability, and ductility than most non-metals. An alloy is a metallic substance, but it is not a single chemical element. It is formed by the union or mixture of two or more metals, or it may consist of one or more metals and non-metals. For example, iron and carbon basically form the alloy called steel, and copper and zinc form brass. Out of the ninety two natural chemical elements about 70 are metals, and of these about 39 are used commercially.	
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25. ***Определите основную идею текста.*** a) Metallurgy includes all phases of working with metals as raw materials and it falls into three divisions. b) An alloy is a metallic substance, but it is not a single chemical element. c) Mechanical metallurgy includes the processes of corking and shaping metals. d) Out of the ninety two natural chemical elements about 70 are metals, and of these about 39 are used commercially. **METALLURGY** It may be said that metallurgy is one of the oldest of arts but one of the youngest of sciences. Many of metals were known in ancient times and many practical uses were made of those metals, but it is only within the last century or two that the knowledge of the properties of the metals has made it possible to apply them in industrial purposes. Metallurgy includes all phases of working with metals as raw materials and it falls into three divisions: chemical or extractive, physical, and mechanical. Chemical metallurgy includes the metallurgical properties involving chemical change and embraces chiefly the methods of production and refining. Physical metallurgy deals with the nature, structure and physical properties of metals and alloys. Mechanical metallurgy includes the processes of corking and shaping metals. The chemical elements are divided into metals and non-metals, but there is no sharp dividing line between the two groups. Elements whose properties are on the border between metals and non-metals are called metalloids. A metal is a chemical element that has metallic lustre and which in electrolysis carries a positive charge and is liberated at the cathode. Most nonmetallic elements do not possess metallic lustre; in electrolysis the non-metals carry negative charges and are liberated at the anode. Metals are also characterized by high conductivity, and most metals possess higher density, strength, malleability, and ductility than most non-metals. An alloy is a metallic substance, but it is not a single chemical element. It is formed by the union or mixture of two or more metals, or it may consist of one or more metals and non-metals. For example, iron and carbon basically form the alloy called steel, and copper and zinc form	**УК-3**

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