Контрольно-оценочные средства для проведения текущего контроля
по СГ.02 Иностранный язык в профессиональной деятельности
(3 курс, 5 семестр 2025-2026 уч. г.)

Текущий контроль №1

Форма контроля: Практическая работа (Опрос)
Описательная часть: Письменная практическая работа
Задание №1

Read the text "Mechanical Properties of Materials" and find the following words and word combinations in the text:

1. количество массы в единице объема;

2. килограмм на кубический метр;

3. мера сопротивления деформации;

4. отношение приложенной силы на единицу площади к частичной упругой деформации;

5. жесткая конструкция;

6. прочность на сжатие;

7. способность материала деформироваться не разрушаясь;

8. поглощать энергию путем деформации;

9. постепенное изменение формы;

10. повышенные температуры.

Mechanical Properties of Materials

Density (specific weight) is theamount of mass in a unitvolume. It is measured in kilograms per cubic metre. The density of water is 1000 kg/ m^3 but most materials have a higher density andsink in water. Aluminium alloys, with typical densities around 2800 kg/ m^3 are considerably less dense than steels, which have typical densities around 7800 kg/ m^3. Density is important in any application where the material must not be heavy.

Stiffness (rigidity) is a measure of the resistance to deformation such as stretching or bending. The Young modulus is a measure of the resistance to simple stretching or compression. It is the ratio of the applied force per unit area (stress) to the fractional elastic deformation (strain). Stiffness is important when a rigid structure is to be made.

Strength is the force per unit area (stress) that a material can support without failing. The units are the same as those of Stiffness, MN/m^2, but in this case the deformation is irreversible. Theyield strength is the stress at which a material first deforms plastically. For a metal the yield strength may be less than the fracture strength, which is the stress at which it breaks. Many materials have a higher strength in compression than in tension.

Ductility is the ability of a material to deform without breaking. One of the great advantages of metals is theirabilityto be formed into the shape that is needed, such ascar body parts. Materials that are not ductile are brittle. Ductile materials canabsorb energy by deformation but brittle materials cannot.

Toughness is the resistance of a material to breaking when there is a crack in it. For a material of given toughness, the stress at which it will fail is inversely proportional to the square root of the size of the largest defect present. Toughness is different from strength: the toughest steels, for example, are different from the ones with highest tensile strength. Brittle materials have low toughness: glass can be broken along a chosen line by first scratching it with a diamond. Composites can be designed to have considerably greater toughness than their constituent materials. The example of a very tough composite is fiberglass that is very flexible and strong.

Creep resistance is the resistance to agradual permanent change of shape, and it becomes especially important at higher temperatures. A successful research has been made in materials for machine parts that operate at high temperatures and under high tensile forces without gradually extending, for example the parts of plane engines.

Оценка	Показатели оценки
3	Даны эквиваленты к 5-6 выражениям с допущением незначительных ошибок.
4	Даны правильно эквиваленты к 7-8 выражениям.
5	Даны правильно эквиваленты к 9-10 выражениям.

Задание №2

Read the text

Metals and their use

It is known that metals are very important in our life. Metals have the greatest importance for industry. All machines and other engineering construction have metal parts; some of them consist only of metal parts.

There are large groups of metals:
1) Simple metals- more or less pure chemical elements.
2) Alloys are materials consisting of a simple metal combined with other elements.

About two thirds of all elements found in the earth are metal, but not all metals may be used in industry. Those metals, which are used in industry, are called engineering metals. The most important engineering metal is iron (Fe) which, in the form of alloys with carbon (C) and other elements, finds greater use than any other metal. Metal consisting of iron combined with some other elements are known as ferrous metal; all the other metals are called nonferrous metals. The most important nonferrous metals are copper (Cu),

aluminum (Al), lead (Pb), zinc (Zn), tin (Sn), but all these metals are used much less, than ferrous metals, because the ferrous metals are much cheaper.

Engineering metals are used in industry in the form of alloys because the properties of alloys are much better than the properties of pure metals. Only aluminum may be largely used in the form of a simple metal.

People began to use metals after wood and stone, but now metals are more important for our industry than these two old materials. Metals have such a great importance because of their useful properties. Metals are much stronger and harder than wood and that is why some engineering constructions and machines were impossible when people did not know how to produce and how to use metals. Metal is not so brittle as stone, which was the first, engineering material for people. Strength, hardness, and plasticity of metals are the properties, which made metals so useful for industry. It is possible to find some very plastic wood, but it will be much softer than many metals; stone may be very hard, but it is not plastic at all. Only metals have a combination of there three most useful engineering properties.

But it is much more difficult to get the metals from the earth in which they are found than to find some stone or wood, than is why people began to use metals after stone and wood. The first metal, which was produced by the people, was copper; iron was produced much later.
Different metals are produced in different ways, but almost all the metals are found in the form of metal ore (iron ore copper ore, etc.)

The ore is a mineral consisting of a metal combined with some impurities. In order to produce a metal from some metal ore, we must separate these impurities from the metal; that is done by metallurgy.

Answer the questions:

1. Which metal is the most important for industry?
2. What is an alloy?
3. How do we call alloys consisting of iron combined with carbon?
4. Why are ferrous metals used more largely then nonferrous?
5. What properties of metals make them so useful for engineering?

Оценка	Показатели оценки
3	Даны ответы на 3 вопроса сдопущением некоторых неточностей.
4	Даны правильные развернутые ответы на 4 вопроса.
5	Даны правильные развернутые ответы на 5 вопросов.

Задание №3

Измените форму прилагательных в следующих сочетаниях так, чтобы получившиеся сочетания отражали изменение в процессе производства в лучшую сторону. Переведите сочетания на русский язык: complex component, large machine, accurate shape, a small number of operations, little waste, new techniques, simple unit, efficient manufacture

1. Model: wasteful process — less wasteful process

TEXT A. CHANGES IN MATERIALS TECHNOLOGY

Since the technology of any age is founded upon the materials of the age, the era of new materials will have a profound effect on engineering of the future.

Not only new materials, but related, and equally important, new and improved and less wasteful processes for the shaping, treating and finishing of both traditional and new materials are continuously being developed.

It is important that an engineer should be familiar with them. These include casting, injection molding and rotational molding of components of ever increasing size, complexity and accuracy; manufacture of more complex components by powder metallurgy techniques; steel forming and casting processes based on new, larger and more mechanized machines, giving reduced waste and closer tolerances; the avoidance of waste in forging by the use of powder metallurgy or cast press forms and new finishing processes for metals and plastics, just to name a few. A high proportion of these processes is aimed at the production of complex, accurate shapes with a much smaller number of operations and with far less waste than the traditional methods of metal manufacture.

Joining techniques have developed to unprecedented level of sophistication and are also providing opportunities for economies. It is necessary to mention that these newer techniques allow the manufacture of complicated parts by welding together simpler sub-units requiring little machining; such assemblies can be made from a variety of materials. The methods can also be used effectively for assembly, allowing savings to be made in both materials and machine utilization.

The brief review of new processes above has indicated that a new materials technology is rapidly emerging, providing new opportunities and challenges for imaginative product design and for more efficient manufacture.

Оценка	Показатели оценки
3	Количество правильных ответов 5.
4	Количество правильных ответов 6.
5	Количество правильных ответов 7-8.