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Кафедра гуманитарных и социально-экономических наук

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Основы научно-технического перевода

**методические указания по организации
самостоятельной работы
для студентов направления
15.03.02 «Технологические машины и оборудование»
заочной формы обучения**

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Методические указания предназначены для организации самостоятельной работы студентов направления 15.03.02 «Технологические машины и оборудование» 2-3 курса заочной формы обучения по дисциплине «Основы научно-технического перевода». Пособие способствует развитию практических навыков перевода профессионально ориентированных текстов.

Рекомендовано Методическим советом НФ НИТУ «МИСиС»

Содержание

Введение

Данное издание предназначено для студентов 2 и 3 курса направления «Технологические машины и оборудование» заочной формы обучения. Цель изучения дисциплины «Основы научно-технического перевода» студентами – овладение основными видами перевода аутентичного текста на английском языке. В результате обучения студенты должны овладеть умениями видеть структуру английского предложения, выделять его части и связи между ними, выполнять литературный перевод; подбирать подходящий для данного контекста вариант перевода слов; составлять аннотационный перевод текста.

В ходе изучения дисциплины студенты познакомятся со следующими разделами:

1. Грамматические основы перевода. Инфинитив и причастие - (4 семестр) – 6 часов аудиторных занятий и 62 часа самостоятельной работы

2. Грамматические основы перевода. Синтаксис - (5 семестр) – 6 часов аудиторных занятий и 62 часа самостоятельной работы

3. Лексические основы перевода (6 семестр) – 6 часов аудиторных занятий и 62 часа самостоятельной работы.

Весь необходимый теоретический материал по разделам представлен в первой части данного пособия. Инструкция по выполнению полного письменного и аннотационного перевода изложена в приложении А. После прочтения содержания раздела и инструкции следует выполнить рекомендации по подготовке контрольных работ и приступить к их выполнению. Контрольных работ три, каждая представлена в десяти вариантах. Выбор варианта осуществляется преподавателем согласно алфавитному списку студентов группы, при этом 11 номеру списка будет соответствовать второй вариант, 12 номеру – третий и т.п.

Форма промежуточной аттестации по дисциплине в четвертом семестре и пятом семестрах – зачет, в шестом семестре - дифференцированный зачет. Допуском к зачету (дифференцированному зачету) является зачтенная контрольная работа. После выполнения контрольной работы оформите ее следующим образом: титульная страница, MS Word, Times New Roman, 14 пт., интервал – 1,5 (в таблицах – одинарный интервал), поля: слева 3 см, справа – 1,5 см, сверху и снизу – 2 см. Вложите работу в скоросшиватель с прозрачной обложкой.

Сдать работу следует за 2 недели до сессии. Если работа не зачтена, выполните работу над ошибками и предоставьте ее на проверку вместе со старым вариантом, не меняя титульный лист.

1. Методические указания для выполнения контрольной работы и варианты контрольных работ за 4 семестр

1.1 Методические указания по выполнению контрольной работы за 4 семестр

1. Внимательно прочитайте представленный ниже справочный материал «Грамматические основы перевода. Инфинитив и причастие» и пошаговую инструкцию выполнения полного письменного и аннотационного перевода, представленную в приложении А.

Грамматические основы перевода. Инфинитив и причастие
Особенности перевода неличной формы глагола - инфинитива

Способ перевода инфинитива на русский язык зависит от формы и его функции в предложении (Рисунок 1).

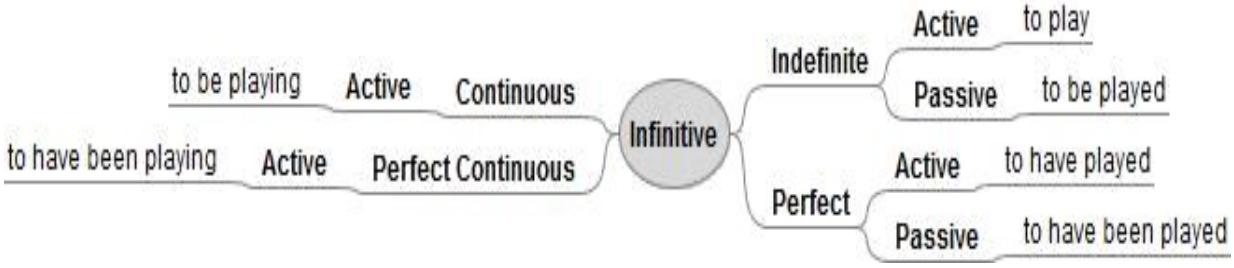

Рисунок 1 – Формы инфинитива

Инфинитив в английском предложении может выполнять следующие функции:

1. Подлежащего (переводится неопределенной формой глагола).

To prove this fact experimentally is very easy. - Доказать этот факт экспериментально очень легко.

2. Именной части составного сказуемого (переводится неопределенной формой глагола, нередко с союзом чтобы).

Your work is to observe the performance of the machine. - Ваша работа заключается в том, чтобы наблюдать за работой станка.

3. Части составного глагола сказуемого после модальных глаголов и их эквивалентов и глаголов в личной форме, обозначающих начало, продолжение или конец действия.

They must calculate the figures. – Они должны подсчитать эти цифры.

At last the kettle came to boil. - Наконец котел закипел.

4. Дополнения (переводится неопределенной формой глагола).

He asked the student to revise the material. - Он попросил студента повторить материал.

Если дополнение выражено сложной формой инфинитива, то оно переводится придаточным предложением с союзом *что* или *чтобы*.

The engineers reported to have obtained good results in the latest tests of the new model. - Инженеры сообщили, что (они) достигли хороших результатов при последних испытаниях новой модели.

5. Обстоятельства. Инфинитив в этой функции с группой последующих слов чаще всего переводится на русский язык обстоятельством цели с союзами чтобы ; для того, чтобы.

To make price higher we must improve the quality of goods. - Чтобы повысить цену, мы должны улучшить качество товаров.

6. Правового определения. обычно переводится определительным придаточным предложением с добавлением слов: следует, надо, должен.

Experiments have shown that the amount of work to be used for producing a given amount of goods is the same under all conditions. - Опыты показали, что количество работы, которое нужно израсходовать для получения данного количества товаров, является одинаковым при всех условиях.

Инфинитивные обороты в английском языке.

В английском языке существует три вида инфинитивных оборотов (см. рисунок 2).

Рисунок 2 – Инфинитивные обороты

Сложное дополнение состоит из существительного или местоимения в объектном падеже и инфинитива, связанных между собой. Оборот в предложении стоит обычно за сказуемым основного предложения и выполняет функцию сложного дополнения. Он употребляется после глаголов типа: *to want, to suppose, to find, to expect, to believe* и т.д.

Оборот переводится на русский язык придаточным дополнительным предложением, причем инфинитив переводится глаголом-сказуемым, а существительное или местоимение в объектном падеже – существительным или личным местоимением как подлежащее.

We know him to be the first inventor of an electrical measuring instrument. - Мы знаем, что он является первым изобретателем электрического прибора.

Сложное подлежащее состоит из существительного или личного местоимения в именительном падеже и инфинитива, связанного с ним по смыслу. Между ними стоит сказуемое.

оборот синтаксически выполняет функцию сложного подлежащего.

Перевод всей конструкции обычно начинается со сказуемого, которое переводится неопределенно-личным предложением («известно», «сообщают», «кажется» и т.д.). Сам оборот переводится придаточным предложением.

All goods, are known to be produced by our firm. - Известно, что все товары производятся нашей фирмой.

Оборот с предлогом "FOR" состоит из существительного или местоимения с предлогом for и инфинитива, образуя синтаксическую группу, которая в предложении выполняет следующие функции: 1) подлежащего, 2) именной части сказуемого, 3) дополнения, 4) обстоятельства, 5) определения. Этот оборот переводится на русский язык неопределенной формой глагола или придаточным предложением, в котором существительное или местоимение из оборота становится подлежащим, а инфинитив – глаголом-сказуемым.

He explained the scheme for the second time for us to understand it better. (обстоятельство цели) - Он объяснил схему второй раз, чтобы мы лучше ее поняли.

Особенности перевода неличной формы глагола - причастия

Причастие является неличной формой глагола и обладает признаками, как прилагательного, так и глагола и имеет следующие формы (см. рисунок 3).

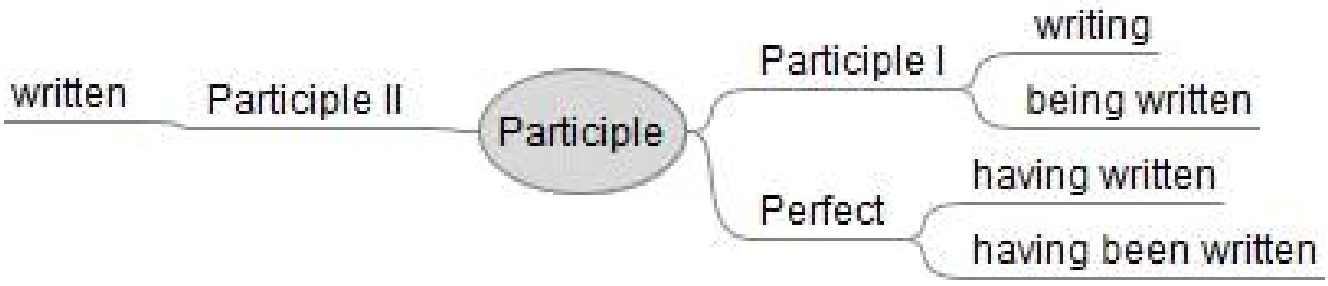

Рисунок 3 – Формы причастия

Чтобы правильно перевести формы причастия с английского на русский, необходимо выполнить ряд шагов.

1. Прочитать предложение и найти причастие, руководствуясь приведенной выше интеллект-картой (Рисунок 1).

2. Определить функцию причастия в предложении (каким членом предложения является) и перевести.

В предложении причастие может выполнять следующие функции:

1.**Левого определения** (стоит слева перед существительным как отглагольное прилагательное).

Если это Participle I, то переводится оно с помощью причастия настоящего времени или обычным прилагательным:

The increasing power of technology enables improving all spheres of life. – Растущая мощь технологий способствует улучшению во всех сферах жизни.

Если это Participle II, то оно переводится причастием страдательного залога настоящего или прошедшего времени.

Committee amendments are only proposals to change the introduced bill. – Поправки комитета являются только предложениями для изменения приведенного законопроекта.

2**. Правого определения** (стоит справа после существительного).

Participle I переводится причастным оборотом или придаточным определительным предложением.

The departments produce information influencing the data flow. – Департаменты выдают информацию, влияющую на документооборот.

Participle II переводится причастием страдательного залога настоящего или прошедшего времени или придаточным определительным предложением.

The units used to measure mass are called kilograms. – Единицы, используемые для измерения массы, называются килограммами.

или:

Perfect Participle переводится придаточным определительным предложением.

The computer having been tested at our plant functions quite properly now. – Компьютер, который был испытан (испытанный) на нашем заводе, сейчас функционирует хорошо.

3.**Обстоятельства (** стоит в начале или в конце предложения).

Participle I часто имеет перед собой союзы when, while, а Participle II употребляется с союзами before, if, unless, и т.д.

Participle I и относящиеся к нему слова переводится деепричастным оборотом или обстоятельственным придаточным предложением.

There are certain features that a company must consider designing a plan. –

Существуют определенные особенности, которые компания должна учитывать, составляя план.

Participle II с относящимися к нему словами переводится полным придаточным обстоятельственным предложением.

An electronic computer forms an impressively complex device if viewed as a whole. – Компьютер представляет собой исключительно сложное устройство, если его рассматривать в целом (или если оно рассматривается в целом).

Perfect Participle с относящимися к нему словами переводится деепричастным оборотом или обстоятельственным придаточным предложением, причем действие.

Having been taken on as a mechanical apprentice in 1905 he got only 5 dollars kopecks a month for his hard work. - Когда его взяли в качестве ученика механика в 1905, он получал только 5 долларов в месяц за свою работу.

Если причастие является **частью независимого причастного оборота**, следует определить его границы и выполнить перевод.

Этот оборот состоит из существительного в общем падеже или местоимения в именительном падеже и причастия, между которыми наблюдается связь, аналогичная той, которая имеет место между подлежащим и сказуемым. Этот оборот занимает место обстоятельства.

Переводится придаточным обстоятельственным предложением, если он стоит в начале предложения и, как правило, простым предложением в составе сложносочиненного (чаще всего со словом «причем»), если он стоит в конце предложения.

The firm has sold all the products, the price being rather high. – Фирма продала все изделия, причем цена была очень высокая.

The lights switched off, the traffic becomes chaotic. – Когда выключается светофор, движение на дорогах становится хаотичным.

The new method having been studied, the Department decided to introduce it at all the schools. – После того как новый метод был изучен, министерство решило ввести его во всех школах.

2. Ознакомьтесь с заданиями контрольной работы и сопоставьте каждое с темами раздела.

3. Выполните задания по порядку, начиная с полного письменного перевода текста.

1.2 Варианты контрольной работы (4 семестр)

Вариант 1

I. Выполните полный письменный перевод текста.

II. Выполните аннотационный перевод текста.

III. Выполните следующие задания:

1. Выпишите из текста все предложения, в которых есть инфинитив. Подчеркните инфинитив. Укажите его функцию в предложении, способ перевода и переведите.

Образец выполнения:

The purpose of this research work is to define the drawbacks of the system. – часть составного именного сказуемого – неопределенная форма глагола – Цель этой исследовательской работы - выявить недостатки системы.

2. Выпишите из текста предложения, содержащие инфинитивный оборот. Подчеркните составные части оборота и укажите его вид. Переведите предложение.

Образец выполнения:

The plant is expected to output new cars next year. – сложное подлежащее – Ожидается, что завод выпустит новые автомобили в следующем году.

3. Выпишите из текста все предложения с причастием. Подчеркните причастие, укажите его вид. Напишите способ перевода. Переведите.

Образец выполнения:

The plant built last decade is being reconstructed now. – Participle II – причастие – Завод, построенный в прошлом десятилетии сейчас на реконструкции.

Текст для перевода

Engineering is the application of scientific, economic, social, and practical knowledge in order to design, build, maintain, and improve structures, machines, devices, systems, materials and processes. It may encompass using insights to conceive, model and scale an appropriate solution to a problem or objective. The discipline of engineering is extremely broad, and encompasses a range of more specialized fields of engineering, each with a more specific emphasis on particular areas of technology and types of application.

The American Engineers' Council for Professional Development (ECPD, the predecessor of ABET) has defined "engineering" as:

The creative application of scientific principles to design or develop structures, machines, apparatus, or manufacturing processes, or works utilizing them singly or in combination; or to construct or operate the same with full cognizance of their design; or to forecast their behavior under specific operating conditions; all as respects an intended function, economics of operation or safety to life and property.

One who practices engineering is called an engineer, and those licensed to do so may have more formal designations such as Professional Engineer, Federal Aviation Administration Designated Engineering Representative, Chartered Engineer, Incorporated Engineer, European Engineer.

History

Engineering has existed since ancient times as humans devised fundamental inventions such as the pulley, lever, and wheel. Each of these inventions is consistent with the modern definition of engineering, exploiting basic mechanical principles to develop useful tools and objects.

The term *engineering* itself has a much more recent etymology, deriving from the word *engineer*, which itself dates back to 1300, when an *engine'er* (literally, one who operates an*engine*) originally referred to "a constructor of military engines."[4] In this context, now obsolete, an "engine" referred to a military machine, *i.e.*, a mechanical contraption used in war (for example, a catapult). Notable exceptions of the obsolete usage which have survived to the present day are military engineering corps, *e.g.*, the U.S. Army Corps of Engineers.

The word "engine" itself is of even older origin, ultimately deriving from the Latin *ingenium*, meaning "innate quality, especially mental power, hence a clever invention."

Later, as the design of civilian structures such as bridges and buildings matured as a technical discipline, the term civil engineering entered the lexicon as a way to distinguish between those specializing in the construction of such non-military projects and those involved in the older discipline of military engineering.

Ancient era

The Pharos of Alexandria, the pyramidsin Egypt, the Hanging Gardens of Babylon, the Acropolis and the Parthenonin Greece, the Roman aqueducts, Via Appiaand the Colosseum, Teotihuacán and the cities and pyramids of the Mayan, Inca and Aztec Empires, theGreat Wall of China, the Brihadeshwara temple of Tanjavur and tombs of India, among many others, stand as a testament to the ingenuity and skill of the ancient civil and military engineers.

The earliest civil engineer known by name is Imhotep. As one of the officials of the Pharaoh, Djosèr, he probably designed and supervised the construction of the Pyramid of Djoser (the Step Pyramid) at Saqqara in Egypt around 2630-2611 BC He may also have been responsible for the first known use of columns in architecture.

Ancient Greece developed machines in both the civilian and military domains. The Antikythera mechanism, the first known mechanical computer, and the mechanical inventions of Archimedes are examples of early mechanical engineering. Some of Archimedes' inventions as well as the Antikythera mechanism required sophisticated knowledge

of differential gearing or epicyclic gearing, two key principles in machine theory that helped design the gear trains of the Industrial Revolution, and are still widely used today in diverse fields such as robotics and automotive engineering.

Chinese, Greek and Roman armies employed complex military machines and inventions such as artillery which was developed by the Greeks around the 4th century B.C., the trireme, the ballista and the catapult. In the Middle Ages, the trebuchet was developed.

Вариант 2

I. Выполните полный письменный перевод текста.
II. Выполните аннотационный перевод текста.
III. Выполните следующие задания:

1. Выпишите из текста все предложения, в которых есть инфинитив. Подчеркните инфинитив. Укажите его функцию в предложении, способ перевода и переведите.

Образец выполнения:

The purpose of this research work is to define the drawbacks of the system. – часть составного именного сказуемого – неопределенная форма глагола – Цель этой исследовательской работы - выявить недостатки системы.

2. Выпишите из текста предложения, содержащие инфинитивный оборот. Подчеркните составные части оборота и укажите его вид. Переведите предложение.

Образец выполнения:

The plant is expected to output new cars next year. – сложное подлежащее – Ожидается, что завод выпустит новые автомобили в следующем году.

3. Выпишите из текста все предложения с причастием. Подчеркните причастие, укажите его вид. Напишите способ перевода. Переведите.

Образец выполнения:

The plant built last decade is being reconstructed now. – Participle II – причастие – Завод, построенный в прошлом десятилетии сейчас на реконструкции.

Текст для перевода

Renaissance era

The first electrical engineer is considered to be William Gilbert, with his 1600 publication of De Magnete, who coined the term "electricity"

The first steam engine was built in 1698 by mechanical engineer Thomas Savery. The development of this device gave rise to the Industrial Revolution in the coming decades, allowing for the beginnings of mass production.

With the rise of engineering as a profession in the 18th century, the term became more narrowly applied to fields in which mathematics and science were applied to these ends. Similarly, in addition to military and civil engineering the fields then known as the mechanic arts became incorporated into engineering.

Modern era

The early stages of electrical engineering included the experiments of Alessandro Volta in the 1800s, the experiments of Michael Faraday, Georg Ohm and others and the invention of the electric motor in 1872. The work of James Maxwell and Heinrich Hertz in the late 19th century gave rise to the field of electronics. The later inventions of the vacuum tube and the transistor further accelerated the development of electronics to such an extent that electrical and electronics engineers currently outnumber their colleagues of any other engineering specialty.

The inventions of Thomas Savery and the Scottish engineer James Watt gave rise to modern mechanical engineering. The development of specialized machines and their maintenance tools during the industrial revolution led to the rapid growth of mechanical engineering both in its birthplace Britain and abroad.

John Smeaton was the first self-proclaimed civil engineer, and often regarded as the "father" of civil engineering. He was an English civil engineer responsible for the design of bridges, canals, harbours and lighthouses. He was also a capable mechanical engineer and an eminent physicist. Smeaton designed the third Eddystone Lighthouse (1755–59) where he pioneered the use of 'hydraulic lime' (a form of mortar which will set under water) and developed a technique involving dovetailed blocks of granite in the building of the lighthouse. His lighthouse remained in use until 1877 and was dismantled and partially rebuilt at Plymouth Hoe where it is known as Smeaton's Tower. He is important in the history, rediscovery of, and development of modern cement, because he identified the compositional requirements needed to obtain "hydraulicity" in lime; work which led ultimately to the invention of Portland cement.

Chemical engineering, like its counterpart mechanical engineering, developed in the nineteenth cen tury during the Industrial Revolution. Industrial scale manufacturing demanded new materials and new processes and by 1880 the need for large scale production of chemicals was such that a new industry was created, dedicated to the development and large scale manufacturing of chemicals in new industrial plants. The role of the chemical engineer was the design of these chemical plants and processes.

Aeronautical engineering deals with aircraft design while aerospace engineering is a more modern term that expands the reach of the discipline by including spacecraft design. Its origins can be traced back to the aviation pioneers around the start of the 20th century although the work of Sir George Cayley has recently been dated as being from the last decade of the 18th century. Early knowledge of aeronautical engineering was largely empirical with some concepts and skills imported from other branches of engineering.

The first PhD in engineering (technically, *applied science and engineering*) awarded in the United States went to Josiah Willard Gibbs at Yale University in 1863; it was also the second PhD awarded in science in the U.S.

Only a decade after the successful flights by the Wright brothers, there was extensive development of aeronautical engineering through development of military aircraft that were used in World War I . Meanwhile, research to provide fundamental background science continued by combining theoretical physics with experiments.

In 1990, with the rise of computer technology, the first search engine was built by computer engineer Alan Emtage.

Вариант 3

I. Выполните полный письменный перевод текста.

II. Выполните аннотационный перевод текста.

III. Выполните следующие задания:

1. Выпишите из текста все предложения, в которых есть инфинитив. Подчеркните инфинитив. Укажите его функцию в предложении, способ перевода и переведите.

Образец выполнения:

The purpose of this research work is to define the drawbacks of the system. – часть составного именного сказуемого – неопределенная форма глагола – Цель этой исследовательской работы - выявить недостатки системы.

2. Выпишите из текста предложения, содержащие инфинитивный оборот. Подчеркните составные части оборота и укажите его вид. Переведите предложение.

Образец выполнения:

The plant is expected to output new cars next year. – сложное подлежащее – Ожидается, что завод выпустит новые автомобили в следующем году.

3. Выпишите из текста все предложения с причастием. Подчеркните причастие, укажите его вид. Напишите способ перевода. Переведите.

Образец выполнения:

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Текст для перевода

Main branches of engineering

Engineering, much like other science, is a broad discipline which is often broken down into several sub-disciplines. These disciplines concern themselves with differing areas of engineering work. Although initially an engineer will usually be trained in a specific discipline, throughout an engineer's career the engineer may become multi-disciplined, having worked in several of the outlined areas. Engineering is often characterized as having four main branches:

- Chemical engineering – The application of physics, chemistry, biology, and engineering principles in order to carry out chemical processes on a commercial scale, such as petroleum refining, microfabrication, fermentation, and biomolecule production.
- Civil engineering – The design and construction of public and private works, such as infrastructure (airports, roads, railways, water supply and treatment etc.), bridges, dams, and buildings.
- Electrical engineering– The design and study of various electrical and electronic systems, such as electrical circuits, generators, motors, electromagnetic/electromechanical devices, electronic devices, electronic circuits, optical fibers, optoelectronic devices, computer systems, telecommunications, instrumentation, controls, and electronics.
- Mechanical engineering– The design of physical or mechanical systems, such as power and energy systems, aerospace/aircraft products, weapon systems, transportation products, engines, compressors, power trains, kinematic chains, vacuum technology, and vibration isolation equipment.

Beyond these four, sources vary on other main branches. Historically, naval engineering and mining engineering were major branches. Modern fields sometimes included as major branches include acoustical engineering, corrosion engineering, aerospace,automotive, computer, electronic, petroleum, systems, audio, software, architectural, biosystems, biomedical, geological, industrial,materials, and nuclear engineering. These and other branches of engineering are represented in the 36 institutions forming the membership of the UK Engineering Council.

New specialties sometimes combine with the traditional fields and form new branches - for example Earth Systems Engineering and Management involves a wide range of subject areas including anthropology, engineering, environmental science, ethics and philosophy. A new or emerging area of application will commonly be defined temporarily as a permutation or subset of existing disciplines; there is often gray area as to when a given sub-field becomes large and/or prominent enough to warrant classification as a new "branch." One key indicator of such emergence is when major universities start establishing departments and programs in the new field.

For each of these fields there exists considerable overlap, especially in the areas of the application of sciences to their disciplines such as physics, chemistry and mathematics.

Methodology

Engineers apply mathematics and sciences such as physics to find suitable solutions to problems or to make improvements to the status quo. More than ever, engineers are now required to have knowledge of relevant sciences for their design projects. As a result, they may keep on learning new material throughout their career.

If multiple options exist, engineers weigh different design choices on their merits and choose the solution that best matches the requirements. The crucial and unique task of the engineer is to identify, understand, and interpret the constraints on a design in order to produce a successful result. It is usually not enough to build a technically successful product; it must also meet further requirements.

Constraints may include available resources, physical, imaginative or technical limitations, flexibility for future modifications and additions, and other factors, such as requirements for cost, safety, marketability, productibility, and serviceability. By understanding the constraints, engineers derive specifications for the limits within which a viable object or system may be produced and operated.

Вариант 4

I. Выполните полный письменный перевод текста.

II. Выполните аннотационный перевод текста.

III. Выполните следующие задания:

1. Выпишите из текста все предложения, в которых есть инфинитив. Подчеркните инфинитив. Укажите его функцию в предложении, способ перевода и переведите.

Образец выполнения:

The purpose of this research work is to define the drawbacks of the system. – часть составного именного сказуемого – неопределенная форма глагола – Цель этой исследовательской работы - выявить недостатки системы.

2. Выпишите из текста предложения, содержащие инфинитивный оборот. Подчеркните составные части оборота и укажите его вид. Переведите предложение.

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Образец выполнения:

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Текст для перевода

Problem solving

Engineers use their knowledge of science, mathematics, logic, economics, and appropriate experience or tacit knowledge to find suitable solutions to a problem. Creating an appropriate mathematical model of a problem allows them to analyze it (sometimes definitively), and to test potential solutions.

Usually multiple reasonable solutions exist, so engineers must evaluate the different design choices on their merits and choose the solution that best meets their requirements. Genrich Altshuller, after gathering statistics on a large number of patents, suggested that compromises are at the heart of "low-level" engineering designs, while at a higher level the best design is one which eliminates the core contradiction causing the problem.

Engineers typically attempt to predict how well their designs will perform to their specifications prior to full-scale production. They use, among other things: prototypes, scale models, simulations, destructive tests, nondestructive tests, and stress tests. Testing ensures that products will perform as expected.

Engineers take on the responsibility of producing designs that will perform as well as expected and will not cause unintended harm to the public at large. Engineers typically include a factor of safety in their designs to reduce the risk of unexpected failure. However, the greater the safety factor, the less efficient the design may be.

The study of failed products is known as forensic engineering, and can help the product designer in evaluating his or her design in the light of real conditions. The discipline is of greatest value after disasters, such as bridge collapses, when careful analysis is needed to establish the cause or causes of the failure.

Computer use

As with all modern scientific and technological endeavors, computers and software play an increasingly important role. As well as the typical business application software there are a number of computer aided applications (computer-aided technologies) specifically for engineering. Computers can be used to generate models of fundamental physical processes, which can be solved using numerical methods.

One of the most widely used tools in the profession is computer-aided design (CAD) software like Autodesk Inventor, DSS Solid Works, or Pro Engineer which enables engineers to create 3D models, 2D drawings, and schematics of their designs. CAD together with Digital Mockup (DMU) and CAE software such as finite element method analysis or analytic element method allows engineers to create models of designs that can be analyzed without having to make expensive and time-consuming physical prototypes.

These allow products and components to be checked for flaws; assess fit and assembly; study ergonomics; and to analyze static and dynamic characteristics of systems such as stresses, temperatures, electromagnetic emissions, electrical currents and voltages, digital logic levels, fluid flows, and kinematics. Access and distribution of all this information is generally organized with the use of Product Data Management software.

There are also many tools to support specific engineering tasks such as computer-aided manufacture (CAM) software to generate CNC machining instructions; Manufacturing Process Management software for production engineering; EDA for printed circuit board (PCB) and circuit schematics for electronic engineers; MRO applications for maintenance management; and AEC software for civil engineering.

In recent years the use of computer software to aid the development of goods has collectively come to be known as Product Lifecycle Management (PLM).

Social context

Engineering is a subject that ranges from large collaborations to small individual projects. Almost all engineering projects are beholden to some sort of financing agency: a company, a set of investors, or a government. The few types of engineering that are minimally constrained by such issues are pro bono engineering and open design engineering.

Вариант 5

I. Выполните полный письменный перевод текста.

II. Выполните аннотационный перевод текста.

III. Выполните следующие задания:

1. Выпишите из текста все предложения, в которых есть инфинитив. Подчеркните инфинитив. Укажите его функцию в предложении, способ перевода и переведите.

Образец выполнения:

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2. Выпишите из текста предложения, содержащие инфинитивный оборот. Подчеркните составные части оборота и укажите его вид. Переведите предложение.

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3. Выпишите из текста все предложения с причастием. Подчеркните причастие, укажите его вид. Напишите способ перевода. Переведите.

Образец выполнения:

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Текст для перевода

Social context

By its very nature engineering is bound up with society and human behavior. Every product or construction used by modern society will have been influenced by engineering. Engineering is a very powerful tool to make changes to environment, society and economies, and its application brings with it a great responsibility. Many engineering societies have established codes of practice and codes of ethics to guide members and inform the public at large.

Engineering projects can be subject to controversy. Examples from different engineering disciplines include the development of nuclear weapons, the Three Gorges Dam, the design and use of sport utility vehicles and the extraction of oil. In response, some western engineering companies have enacted serious corporate and social responsibility policies.

Engineering is a key driver of human development. Sub-Saharan Africa in particular has a very small engineering capacity which results in many African nations being unable to develop crucial infrastructure without outside aid. The attainment of many of the Millennium Development Goals requires the achievement of sufficient engineering capacity to develop infrastructure and sustainable technological development.

All overseas development and relief NGOs make considerable use of engineers to apply solutions in disaster and development scenarios. A number of charitable organizations aim to use engineering directly for the good of mankind:

- Engineers Without Borders
- Engineers Against Poverty
- Registered Engineers for Disaster Relief
- Engineers for a Sustainable World
- Engineering for Change
- Engineering Ministries Internationa

Science

There exists an overlap between the sciences and engineering practice; in engineering, one applies science. Both areas of endeavor rely on accurate observation of materials and phenomena. Both use mathematics and classification criteria to analyze and communicate observations. Scientists may also have to complete engineering tasks, such as designing experimental apparatus or building prototypes. Conversely, in the process of developing technology engineers sometimes find themselves exploring new phenomena, thus becoming, for the moment, scientists. In the book *What Engineers Know and How They Know It*, Walter Vincenti asserts that engineering research has a character different from that of scientific research. First, it often deals with areas in which the basic physics and/or chemistry are well understood, but the problems themselves are too complex to solve in an exact manner.

Examples are the use of numerical approximations to the Navier-Stokes equations to describe aerodynamic flow over an aircraft, or the use of Miner's rule to calculate fatigue damage. Second, engineering research employs many semi-empirical methods that are foreign to pure scientific research, one example being the method of parameter variation. As stated by Fung et al. in the revision to the classic engineering text, Foundations of Solid Mechanics:

Engineering is quite different from science. Scientists try to understand nature. Engineers try to make things that do not exist in nature. Engineers stress invention. To embody an invention the engineer must put his idea in concrete terms, and design something that people can use. That something can be a device, a gadget, a material, a method, a computing program, an innovative experiment, a new solution to a problem, or an improvement on what is existing. Since a design has to be concrete, it must have its geometry, dimensions, and characteristic numbers. Almost all engineers working on new designs find that they do not have all the needed information. Most often, they are limited by insufficient scientific knowledge. Thus they study mathematics, physics, chemistry, biology and mechanics. Often they have to add to the sciences relevant to their profession. Thus engineering sciences are born."

Although engineering solutions make use of scientific principles, engineers must also take into account safety, efficiency, economy, reliability and constructability or ease of fabrication, as well as legal considerations such as patent infringement or liability in the case of failure of the solution.

Вариант 6

I. Выполните полный письменный перевод текста.
II. Выполните аннотационный перевод текста.
III. Выполните следующие задания:

1. Выпишите из текста все предложения, в которых есть инфинитив. Подчеркните инфинитив. Укажите его функцию в предложении, способ перевода и переведите.

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2. Выпишите из текста предложения, содержащие инфинитивный оборот. Подчеркните составные части оборота и укажите его вид. Переведите предложение.

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Образец выполнения:

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Текст для перевода

Mechanical engineering is a discipline of engineering that applies the principles of engineering, physics and materials science for analysis, design, manufacturing, and maintenance of mechanical systems. It is the branch of engineering that involves the production and usage of heat and mechanical power for the design, production, and operation of machines and tools.[1] It is one of the oldest and broadest engineering disciplines.

The engineering field requires an understanding of core concepts including mechanics, kinematics, thermodynamics, materials science, structural analysis, and electricity. Mechanical engineers use these core principles along with tools like computer-aided engineering, and product lifecycle management to design and analyze manufacturing plants, industrial equipment and machinery, heating and cooling systems, transport systems, aircraft, watercraft, robotics, medical devices, weapons, and others.

Mechanical engineering emerged as a field during the industrial revolution in Europe in the 18th century; however, its development can be traced back several thousand years around the world. Mechanical engineering science emerged in the 19th century as a result of developments in the field of physics. The field has continually evolved to incorporate advancements in technology, and mechanical engineers today are pursuing developments in such fields as composites, mechatronics, and nanotechnology. Mechanical engineering overlaps with aerospace engineering, metallurgical engineering, civil engineering, electrical engineering, petroleum engineering, manufacturing engineering, chemical engineering, and other engineering disciplines to varying amounts. Mechanical engineers may also work in the field of Biomedical engineering, specifically with biomechanics, transport phenomena, biomechatronics, bionanotechnology and modeling of biological systems, like soft tissue mechanics.

Development

Applications of mechanical engineering are found in the records of many ancient and medieval societies throughout the globe. In ancient Greece, the works of Archimedes (287 BC–212 BC) deeply influenced mechanics in the Western tradition and Heron of Alexandria (c. 10–70 AD) created the first steam engine. In China, Zhang Heng (78–139 AD) improved a water clock and invented a seismometer, and Ma Jun (200–265 AD) invented a chariot with differential gears. The medieval Chinese horologist and engineer Su Song (1020–1101 AD) incorporated an escapement mechanism into his astronomical clock tower two centuries before any escapement can be found in clocks of medieval Europe, as well as the world's first known endless power-transmitting chain drive.

During the years from 7th to 15th century, the era called the Islamic Golden Age, there were remarkable contributions from Muslim inventors in the field of mechanical technology. Al-Jazari, who was one of them, wrote his famous *Book of Knowledge of Ingenious Mechanical Devices* in 1206, and presented many mechanical designs. He is also considered to be the inventor of such mechanical devices which now form the very basic of mechanisms, such as the crankshaft and camshaft.

Important breakthroughs in the foundations of mechanical engineering occurred in England during the 17th century when Sir Isaac Newton both formulated the three Newton's Laws of Motion and developed Calculus, the mathematical basis of physics. Newton was reluctant to publish his methods and laws for years, but he was finally persuaded to do so by his colleagues, such as Sir Edmund Halley, much to the benefit of all mankind. Gottfried Wilhelm Leibniz is also credited with creating Calculus during the same time frame.

During the early 19th century in England, Germany and Scotland, the development of machine tools led mechanical engineering to develop as a separate field within engineering, providing manufacturing machines and the engines to power them. The first British professional society of mechanical engineers was formed in 1847 Institution of Mechanical Engineers, thirty years after the civil engineers formed the first such professional society Institution of Civil Engineers.[6] On the European continent, Johann Von Zimmermann (1820–1901) founded the first factory for grinding machines in Chemnitz, Germany in 1848.

In the United States, the American Society of Mechanical Engineers (ASME) was formed in 1880, becoming the third such professional engineering society, after the American Society of Civil Engineers (1852) and the American Institute of Mining Engineers (1871). The first schools in the United States to offer an engineering education were the United States Military Academy in 1817, an institution now known as Norwich University in 1819, and Rensselaer Polytechnic Institute in 1825.

Вариант 7

I. Выполните полный письменный перевод текста.

II. Выполните аннотационный перевод текста.

III. Выполните следующие задания:

1. Выпишите из текста все предложения, в которых есть инфинитив. Подчеркните инфинитив. Укажите его функцию в предложении, способ перевода и переведите.

Образец выполнения:

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2. Выпишите из текста предложения, содержащие инфинитивный оборот. Подчеркните составные части оборота и укажите его вид. Переведите предложение.

Образец выполнения:

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3. Выпишите из текста все предложения с причастием. Подчеркните причастие, укажите его вид. Напишите способ перевода. Переведите.

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Текст для перевода

Education

Degrees in mechanical engineering are offered at universities worldwide. In Brazil, Ireland, Philippines, Pakistan, China, Greece, Turkey, North America, South Asia, India, Dominican Republic and the United Kingdom, mechanical engineering programs typically take four to five years of study and result in a Bachelor of Engineering (B.Eng), Bachelor of Science (B.Sc), Bachelor of Science Engineering (B.ScEng), Bachelor of Technology (B.Tech), or Bachelor of Applied Science (B.A.Sc) degree, in or with emphasis in mechanical engineering. In Spain, Portugal and most of South America, where neither BSc nor BTech programs have been adopted, the formal name for the degree is "Mechanical Engineer", and the course work is based on five or six years of training. In Italy the course work is based on five years of training, but in order to qualify as an Engineer you have to pass a state exam at the end of the course. In Greece, the coursework is based on a five year curriculum and the requirement of a 'Diploma' Thesis, which upon completion a 'Diploma' is awarded rather than a B.Sc.

In Australia, mechanical engineering degrees are awarded as Bachelor of Engineering (Mechanical) or similar nomenclature although there are an increasing number of specialisations. The degree takes four years of full-time study to achieve. To ensure quality in engineering degrees, Engineers Australia accredits engineering degrees awarded by Australian universities in accordance with the global Washington Accord. Before the degree can be awarded, the student must complete at least 3 months of on the job work experience in an engineering firm. Similar systems are also present in South Africa and are overseen by the Engineering Council of South Africa (ECSA).

In the United States, most undergraduate mechanical engineering programs are accredited by the Accreditation Board for Engineering and Technology (ABET) to ensure similar course requirements and standards among universities. The ABET web site lists 276 accredited mechanical engineering programs as of 19 June 2006. Mechanical engineering programs in Canada are accredited by the Canadian Engineering Accreditation Board (CEAB), and most other countries offering engineering degrees have similar accreditation societies.

Some mechanical engineers go on to pursue a postgraduate degree such as a Master of Engineering, Master of Technology, Master of Science, Master of Engineering Management (MEng.Mgt or MEM), a Doctor of Philosophy in engineering (EngD, PhD) or an engineer's degree. The master's and engineer's degrees may or may not include research. The Doctor of Philosophy includes a significant research component and is often viewed as the entry point to academia. The Engineer's degree exists at a few institutions at an intermediate level between the master's degree and the doctorate.

License

Engineers may seek license by a state, provincial, or national government. The purpose of this process is to ensure that engineers possess the necessary technical knowledge, real-world experience, and knowledge of the local legal system to practice engineering at a professional level. Once certified, the engineer is given the title of Professional Engineer(in the United States, Canada, Japan, South Korea, Bangladesh and South Africa), Chartered Engineer (in the United Kingdom, Ireland, India and Zimbabwe), *Chartered Professional Engineer* (in Australia and New Zealand) or *European Engineer* (much of the European Union) Registered Engineer or Professional

Engineer in Philippines and Pakistan. The Chartered Engineer and European Engineer are not licenses to practice - they are qualifications

In the U.S., to become a licensed Professional Engineer, an engineer must pass the comprehensive FE (Fundamentals of Engineering) exam, work a given number of years as an *Engineering Intern (EI)* or *Engineer-in-Training (EIT)*, and finally pass the "Principles and Practice" or PE (Practicing Engineer or Professional Engineer) exams.

In the United States, the requirements and steps of this process are set forth by the National Council of Examiners for Engineering and Surveying (NCEES), a composed of engineering and land surveying licensing boards representing all U.S. states and territories. In the UK, current graduates require a BEng plus an appropriate masters degree or an integrated MEng degree, a minimum of 4 years post graduate on the job competency development, and a peer reviewed project report in the candidates specialty area in order to become chartered through the Institution of Mechanical Engineers.

Вариант 8

I. Выполните полный письменный перевод текста.
II. Выполните аннотационный перевод текста.
III. Выполните следующие задания:

1. Выпишите из текста все предложения, в которых есть инфинитив. Подчеркните инфинитив. Укажите его функцию в предложении, способ перевода и переведите.

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Образец выполнения:

The plant is expected to output new cars next year. – сложное подлежащее – Ожидается, что завод выпустит новые автомобили в следующем году.

3. Выпишите из текста все предложения с причастием. Подчеркните причастие, укажите его вид. Напишите способ перевода. Переведите.

Образец выполнения:

The plant built last decade is being reconstructed now. – Participle II – причастие – Завод, построенный в прошлом десятилетии сейчас на реконструкции.

Текст для перевода

Mechanics

Mechanics is, in the most general sense, the study of forces and their effect upon matter. Typically, engineering mechanics is used to analyze and predict the acceleration and deformation (both elastic and plastic) of objects under known forces (also called loads) or stresses. Subdisciplines of mechanics include

- Statics, the study of non-moving bodies under known loads, how forces affect static bodies
- Dynamics (or kinetics), the study of how forces affect moving bodies
- Mechanics of materials, the study of how different materials deform under various types of stress
- Fluid mechanics, the study of how fluids react to forces[24]
- Kinematics, the study of the motion of bodies (objects) and systems (groups of objects), while ignoring the forces that cause the motion. Kinematics is often used in the design and analysis of mechanisms.

- Continuum mechanics, a method of applying mechanics that assumes that objects are continuous (rather than discrete)

Mechanical engineers typically use mechanics in the design or analysis phases of engineering. If the engineering project were the design of a vehicle, statics might be employed to design the frame of the vehicle, in order to evaluate where the stresses will be most intense. Dynamics might be used when designing the car's engine, to evaluate the forces in the pistons and cams as the engine cycles. Mechanics of materials might be used to choose appropriate materials for the frame and engine. Fluid mechanics might be used to design a ventilation system for the vehicle (see HVAC), or to design the intake system for the engine.

Mechatronics and robotics

Mechatronics is an interdisciplinary branch of mechanical engineering, electrical engineering and software engineering that is concerned with integrating electrical and mechanical engineering to create hybrid systems. In this way, machines can be automated through the use of electric motors, servo-mechanisms, and other electrical systems in conjunction with special software. A common example of a mechatronics system is a CD-ROM drive. Mechanical systems open and close the drive, spin the CD and move the laser, while an optical system reads the data on the CD and converts it to bits. Integrated software controls the process and communicates the contents of the CD to the computer.

Robotics is the application of mechatronics to create robots, which are often used in industry to perform tasks that are dangerous, unpleasant, or repetitive. These robots may be of any shape and size, but all are preprogrammed and interact physically with the world. To create a robot, an engineer typically employs kinematics (to determine the robot's range of motion) and mechanics (to determine the stresses within the robot).

Robots are used extensively in industrial engineering. They allow businesses to save money on labor, perform tasks that are either too dangerous or too precise for humans to perform them economically, and to ensure better quality. Many companies employ assembly lines of robots, especially in Automotive Industries and some factories are so robotized that they can run by themselves. Outside the factory, robots have been employed in bomb disposal, space exploration, and many other fields. Robots are also sold for various residential applications, from recreation to domestic applications.

Structural analysis

Structural analysis is the branch of mechanical engineering (and also civil engineering) devoted to examining why and how objects fail and to fix the objects and their performance. Structural failures occur in two general modes: static failure, and fatigue failure. *Static structural failure* occurs when, upon being loaded (having a force applied) the object being analyzed either breaks or is deformed plastically, depending on the criterion for failure. *Fatigue failure* occurs when an object fails after a number of repeated loading and unloading cycles. Fatigue failure occurs because of imperfections in the object: a microscopic crack on the surface of the object, for instance, will grow slightly with each cycle (propagation) until the crack is large enough to cause ultimate failure.

Failure is not simply defined as when a part breaks, however; it is defined as when a part does not operate as intended.

Вариант 9

I. Выполните полный письменный перевод текста.

II. Выполните аннотационный перевод текста.

III. Выполните следующие задания:

1. Выпишите из текста все предложения, в которых есть инфинитив. Подчеркните инфинитив. Укажите его функцию в предложении, способ перевода и переведите.

Образец выполнения:

The purpose of this research work is to define the drawbacks of the system. – часть составного именного сказуемого – неопределенная форма глагола – Цель этой исследовательской работы - выявить недостатки системы.

2. Выпишите из текста предложения, содержащие инфинитивный оборот. Подчеркните составные части оборота и укажите его вид. Переведите предложение.

Образец выполнения:

The plant is expected to output new cars next year. – сложное подлежащее – Ожидается, что завод выпустит новые автомобили в следующем году.

3. Выпишите из текста все предложения с причастием. Подчеркните причастие, укажите его вид. Напишите способ перевода. Переведите.

Образец выполнения:

The plant built last decade is being reconstructed now. – Participle II – причастие – Завод, построенный в прошлом десятилетии сейчас на реконструкции.

Текст для перевода

Mechatronics

Mechatronics is the synergistic combination of mechanical engineering, Electronic Engineering, and software engineering. The purpose of this interdisciplinary engineering field is the study of automation from an engineering perspective and serves the purposes of controlling advanced hybrid systems.

Nanotechnology

At the smallest scales, mechanical engineering becomes nanotechnology —one speculative goal of which is to create a molecular assembler to build molecules and materials via mechanosynthesis. For now that goal remains within exploratory engineering. Areas of current mechanical engineering research in nanotechnology include nanofilters, nanofilms, and nanostructures, among others.

Finite element analysis

This field is not new, as the basis of Finite Element Analysis (FEA) or Finite Element Method (FEM) dates back to 1941. But evolution of computers has made FEA/FEM a viable option for analysis of structural problems. Many commercial codes such as ANSYS, Nastran and ABAQUS are widely used in industry for research and design of components. Calculix is an open source and free finite element program. Some 3D modeling and CAD software packages have added FEA modules.

Other techniques such as finite difference method (FDM) and finite-volume method (FVM) are employed to solve problems relating heat and mass transfer, fluid flows, fluid surface interaction etc.

Biomechanics

Biomechanics is the application of mechanical principles to biological systems, such as humans, animals, plants, organs, and cells. Biomechanics also aids in creating prosthetic limbs and artificial organs for humans.

Biomechanics is closely related to engineering, because it often uses traditional engineering sciences to analyse biological systems. Some simple applications of Newtonian mechanics and/or materials sciences can supply correct approximations to the mechanics of many biological systems.

Computational fluid dynamics

Computational fluid dynamics, usually abbreviated as CFD, is a branch of fluid mechanics that uses numerical methods and algorithms to solve and analyze problems that involve fluid flows. Computers are used to perform the calculations required to simulate the interaction of liquids and gases with surfaces defined by boundary conditions. With high-speed supercomputers, better solutions can be achieved. Ongoing research yields software that improves the accuracy and speed of complex simulation scenarios such as transonic or turbulent flows. Initial validation of such

software is performed using a wind tunnel with the final validation coming in full-scale testing, e.g. flight tests.

Acoustical engineering

Acoustical engineering is one of many other sub disciplines of mechanical engineering and is the application of acoustics. Acoustical engineering is the study of Sound and Vibration. These engineers work effectively to reduce noise pollution in mechanical devices and in buildings by soundproofing or removing sources of unwanted noise. The study of acoustics can range from designing a more efficient hearing aid, microphone, headphone, or recording studio to enhancing the sound quality of an orchestra hall. Acoustical engineering also deals with the vibration of different mechanical systems.

Industrial engineering is a branch of engineering dealing with the optimization of complex processes or systems. It is concerned with the development, improvement, implementation and evaluation of integrated systems of people, money, knowledge, information, equipment, energy, materials, analysis and synthesis, as well as the mathematical, physical and social sciences together with the principles and methods of engineering design to specify, predict, and evaluate the results to be obtained from such systems or processes. Its underlying concepts overlap considerably with certain business-oriented disciplines such as operations management.

Depending on the subspecialties involved, industrial engineering may also be known as, or overlap with, operations management, management science, operations research, systems engineering, manufacturing engineering, ergonomics or human factors engineering, safety engineering, or others, depending on the viewpoint or motives of the user. For example, in health care, the engineers known as health management engineers or health systems engineers are, in essence, industrial engineers by another name.

Вариант 10

I. Выполните полный письменный перевод текста.

II. Выполните аннотационный перевод текста.

III. Выполните следующие задания:

1. Выпишите из текста все предложения, в которых есть инфинитив. Подчеркните инфинитив. Укажите его функцию в предложении, способ перевода и переведите.

Образец выполнения:

The purpose of this research work is to define the drawbacks of the system. – часть составного именного сказуемого – неопределенная форма глагола – Цель этой исследовательской работы - выявить недостатки системы.

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Текст для перевода

Industrial engineering

While the term originally applied to manufacturing, the use of "industrial" in "industrial engineering" can be somewhat misleading, since it has grown to encompass any methodical or

quantitative approach to optimizing how a process, system, or organization operates. Some engineering universities and educational agencies around the world have changed the term "industrial" to broader terms such as "production" or "systems", leading to the typical extensions noted above. In fact, the primary U.S. professional organization for Industrial Engineers, the Institute of Industrial Engineers (IIE) has been considering changing its name to something broader (such as the Institute of Industrial & Systems Engineers), although the latest vote among membership deemed this unnecessary for the time being.

The various topics concerning industrial engineers include management science, work-study, financial engineering, engineering management, supply chain management, process engineering, operations research, systems engineering, ergonomics / safety engineering, cost and value engineering, quality engineering, facilities planning, and the engineering design process. Traditionally, a major aspect of industrial engineering was planning the layouts of factories and designing assembly lines and other manufacturing paradigms. And now, in so-called lean manufacturing systems, industrial engineers work to eliminate wastes of time, money, materials, energy, and other resources.

Examples of where industrial engineering might be used include flow process charting, process mapping, designing an assembly workstation, strategizing for various operational logistics, consulting as an efficiency expert, developing a new financial algorithm or loan system for a bank, streamlining operation and emergency room location or usage in a hospital, planning complex distribution schemes for materials or products (referred to as Supply Chain Management), and shortening lines (or queues) at a bank, hospital, or a theme park.

Modern Industrial Engineers typically use Predetermined motion time system, computer simulation (especially discrete event simulation), along with extensive mathematical tools and modeling and computational methods for system analysis, evaluation, and optimization.

History

Efforts to apply science to the design of processes and of production systems were made by many people in the 18th and 19th centuries. They took some time to evolve and to be synthesized into disciplines that we would label with names such as industrial engineering, production engineering, or systems engineering. For example, precursors to industrial engineering included some aspects of military science; the quest to develop manufacturing using interchangeable parts; the development of the armory system of manufacturing; the work of Henri Fayol and colleagues (which grew into a larger movement called Fayolism); and the work of Frederick Winslow Taylor and colleagues (which grew into a larger movement called scientific management). In the late 19th century, such efforts began to inform consultancy and higher education. The idea of consulting with experts about process engineering naturally evolved into the idea of teaching the concepts as curriculum.

Industrial engineering courses were taught by multiple universities in Europe at the end of the 19th century, including in Germany, France, the United Kingdom, and Spain.[1] In the United States, the first department of industrial and manufacturing engineering was established in 1909 at the Pennsylvania State University. The first doctoral degree in industrial engineering was awarded in the 1930s by Cornell University.

In general it can be said that the foundations of industrial engineering as it looks today, began to be built in the twentieth century. The first half of the century was characterized by an emphasis on increasing efficiency and reducing industrial organizations their costs.

In 1909, Frederick Taylor published his theory of scientific management, which included accurate analysis of human labor, systematic definition of methods, tools and training for employees. Taylor dealt in time using timers, set standard times and managed to increase productivity while reducing labor costs and increasing the wages and salaries of the employees.

In 1912 Henry Laurence Gantt developed the Gantt chart which outlines actions the organization along with their relationships. This chart opens later form familiar to us today by Wallace Clark.

Assembly lines: moving car factory of Henry Ford (1913) accounted for a significant leap forward in the field. Ford reduced the assembly time of a car more than 700 hours to 1.5 hours. In addition, he was a pioneer of the economy of the capitalist welfare.

2. Методические указания по выполнению контрольной работы и варианты контрольной работы за 5 семестр.

2.1 Методические указания по выполнению контрольной работы за 5 семестр

1. Внимательно прочитайте представленный ниже справочный материал «Грамматические основы перевода. Синтаксис» и пошаговую инструкцию выполнения полного письменного и аннотационного перевода, представленную в приложении.

Грамматические основы перевода. Синтаксис

Рассмотрим базовую классификацию предложений по структуре и типам связи (см. рисунок 4).

Рисунок 4 – Структура предложений

Простое предложение имеет в своем составе одну основу (подлежащее + сказуемое).
Пример: During recent years methods of measurement have changed considerably – За последние годы методы измерений значительно изменились (methods – подлежащее, have changed – сказуемое)

Сложное предложение состоит из двух или более простых предложений, то есть может содержать две и более основ.

В сложносочиненном союзном предложении простые предложения связываются между собой сочинительными союзами **but, and**.
*Пример:*The wave always travels in a direction at right angles to the wave front **but** its motion depends upon the relative direction of the lines of electromagnetic and electrostatic flux. - Волна всегда распространяется в направлении под прямым углом к фронту волны, но ее движение зависит от относительного направления линий электромагнитного и электростатического потоков.

Сложноподчиненные предложения состоят из главного предложения и одного или более придаточных предложений. Придаточные предложения можно поделить на 5 групп:
придаточное подлежащее
придаточное сказуемое
придаточное дополнение
придаточное определительное
придаточное обстоятельственное.

Основные приемы перевода предложений

1. Рассмотрим основные приемы перевода предложений. Первый из них касается изменения типа предложений (см. рисунок 5).

Рисунок 5 - Изменение типа предложения

а) Замена простого предложения сложным.

Пример: The new plants using radiation are more easily controlled and produce a purer material than the conventional plants. - Новыми предприятиями, которые используют этот метод, лучше управлять и, кроме того, они вырабатывают более чистые материалы (по сравнению с обычными).

Пример: We have in mind the survivors of the Hiroshima and Nagasaki atomic bomb explosions. - Мы имеем в виду тех, кто уцелел после атомной бомбардировки Хиросимы и Нагасаки.

Особенно часто этот прием используется при переводе сложных слов.

Пример: Prudence dictates that each reactor should be provided with a massive, *steellined* concrete containment structure. - В целях предосторожности каждый реактор должен размещаться в толстостенном железобетонном здании, стены которого изнутри покрыты стальными листами.

б) Замена сложного предложения простым.

Применение этого приема основано на замене различных видов придаточных предложений причастными оборотами и на использовании существительных, отглагольных существительных в сочетании с предлогами.

Пример: When application programs are being tested, it is sometimes necessary to simulate missing services.

Можно перевести, сохранив исходную структуру: *Когда проводятся испытания прикладных программ* ...Однако, можно придаточное предложение свернуть в словосочетание. *В ходе испытаний прикладных программ, иногда возникает необходимость в имитации отсутствующих функций обслуживания.*

Пример: Some terminals permit entries to be made before an expected response is received. - а) Некоторые терминалы позволяют передавать очередное сообщение до того, как поступит ожидаемое сообщение. б) … не дожидаясь ответа на предыдущее.

Свертывание сложного предложения в простое наблюдается при переводе конструкций there is, когда за существительным оборота следует определительное переложение:

Пример: There are a number of stages through which a message passes between keying and processing. - Продвижение сообщения от момента набора его на клавиатуре до начала обработки включает несколько стадий.

Пример: There may well be a variety of responses produced by an exchange which may be classified as normal, associated and error. - Множество ответов, вырабатываемых в процессе обмена, можно подразделить на обычные ответы, ассоциативные и уведомления об ошибках.

Этот прием можно рекомендовать и при переводе некоторых конструкций с местоимением в качестве формального подлежащего:

Пример: It is exactly this composition that will do for our purpose. - Этот химический состав точно подойдет для нашей цели.

Пример: It was not only this value that counted much. - Не только эта величина имела большое значение.

в) Членение и объединение предложений при переводе.

Одно исходное предложение (простое или сложное) преобразуется в 2 или более самостоятельных предложений. Основными причинами применения этого приема является

перегруженность предложения информацией или чрезмерная сложность структуры переводимого предложения.

Пример: Another, related tool for the system manager is a monitor or trace program which, though normally used in testing, can be invoked for a suspect program on line. - Еще одним рабочим инструментом в руках системного администратора является контрольная программа, предназначенная для обнаружения неисправностей в системе. Хотя она обычно используется при испытаниях, ею можно воспользоваться для проверки в онлайновом режиме "подозрительной" программы.

Объединение предложений – это прием, состоящий в преобразовании двух или более самостоятельных предложений в одно (простое или сложное) предложение переводящего языка.

Пример: The physicist adopted the word "current" when he described the changed properties of a wire connected to a voltaic battery as an electric current. In 1827 G.S. Ohm discovered the constancy of the relation between electromotive force and current and gave the ratio the name of "resistance". - Физики обозначили словом "ток" процесс, протекающий в проводнике, соединенным с источником электрической энергии, а словом "сопротивление" ту постоянную величину, которая, согласно закону Ома, открытому в 1827 г., определяет силу тока при данном напряжении.

г) Изменение типа синтаксической связи.

Изменение типа синтаксических отношений – переводческий прием, который заключается в том, что в рамках единого сложного предложения (сложносочиненного или сложноподчиненного) меняется характер синтаксической связи между составными частями целого.

Замена типа придаточных предложений.

Придаточное предложение заменяется другим или же сложносочиненное предложение преобразуется в сложноподчиненное или наоборот.

Пример: If computers are ever to gain wide acceptance for process control they must be understood by the people who have to operate them. - Для того чтобы компьютеры получили широкое распространение в управлении технологическими процессами, люди, работающие с компьютерами, должны все о них знать. (Замена условного придаточного предложения обстоятельственным цели).

Пример: The problem is really of improving efficiency, so that nuclear fuel can compete with free sunlight. - Проблема заключается в повышении эффективности преобразования энергии до такого уровня, при котором ядерное топливо могло бы соперничать с бесплатным солнечным светом.

Замена подчинительной связи на сочинительную.

Этот прием чаще всего используется при переводе сложноподчиненных предложений с обстоятельственным придаточным уступки:

Пример: Although a.c. motors are more common, d.c. motors are unexcelled for applications requiring simple, inexpensive speed control or sustained high torque under low-voltage conditions. - Двигатели переменного тока имеют более широкое применение, однако двигатели постоянного тока незаменимы там, где требуется простое и недорогое регулирование тока или поддержание высокого крутящего момента в условиях низких напряжений.

Замена подчинения сочинением осуществляется и при переводе сложноподчиненного предложения, содержащего обстоятельственное придаточное времени, особенно, если последнее вводится такими союзами, как after или before.

Пример: It will not be long before more steel-making companies will be converting their existing facilities to the hybrid processes and will be taking advantages of higher efficiency in terms of yield and production rates. - Пройдет немного времени, и многие сталелитейные компании

станут приспосабливать уже существующие установки к новым гибридным процессам, используя их преимущества в плане повышения производительности и выпуска продукции.

Придаточное предложение – подлежащее и его перевод.

Придаточное предложение – подлежащее вводится союзами that, whether и союзными словами who, what, which, how, where, why, when.

Придаточное предложение-подлежащее с союзом that переводится с помощью союза "то, что" без изменения порядка слов или с помощью союзов «что», «чтобы» (в последнем случае перевод начинают с главного предложения).

Пример: It is not too far in the future when such designs may become practical. That they are possible is not hard to see. - Недалеко будущее, когда такие проекты станут осуществимы. В том, что они возможны, нетрудно убедиться. (Нетрудно убедиться, что они возможны).

Пример: That the method is too complicated is obvious. - То, что этот метод слишком сложный, очевидно. (Очевидно то, что этот метод слишком сложный).

Пример: What has been said above indicates one of the limitations of this method. То, что было сказано выше, указывает на один из недостатков этого метода. (Сказанное выше указывает …)

Пример: What remains to be briefly mentioned is the role of these units. - Остается кратко упомянуть о роли этих агрегатов.

Иногда придаточное предложение подлежащее, вводимое относительным местоимением what, преобразуется в главное, а главное – в придаточное.

Пример: What is revolutionary about this instrument is that, for the first time, the pilot is provided with an indication which permits him to fly and navigate an aircraft manually with a degree of accuracy and ease that approaches the performance of automatic control. - Этот прибор является новаторским в том, что впервые пилот обеспечен таким указателем, который позволяет ему легко и точно управлять самолетом в ручном режиме, близком к автоматическому управлению.

2. Ознакомьтесь с заданиями контрольной работы и сопоставьте каждое с темами раздела.

3. Выполните задания по порядку, начиная с полного письменного перевода текста.

2.2 Варианты контрольной работы (5 семестр)

Вариант 1

I. Выполните полный письменный перевод текста.

II. Выполните аннотационный перевод текста.

III. Выполните следующие задания:

1. Выпишите из текста предложения, при переводе которых вы использовали один из следующих приемов: замена простого предложения сложным, замена сложного предложения простым, членение или объединение предложений, изменение типа синтаксической связяи. Укажите рядом с выписанным предложением прием перевода и перевод.
2. Найдите в тексте и выпишите 2 простых предложения. Переведите.
3. Найдите в тексте и выпишите 2 ложных предложения. Переведите.

Текст для перевода

Straight grate induration machine

Straight grate systems do all the indurating on a single machine. Drying, pre-heat, indurating and cooling are all done in one integrated furnace.

Metso is one of the original technology suppliers for straight grate systems having acquired the technology from Dravo and Jacobs.

Features

These plants typically produce pellets using less fuel than other types of pelletizing systems. Metso has designed and supplied some of the most modern and largest straight grate systems in the world. These plants have the highest outputs with lowest fuel usage and lowest emissions.

Benefits

Straight grate design usually has a higher bed depth compared to a grate kiln but due to excellent refractory and recycling of air have a lower fuel usage.

Process overview

Straight grate systems consist of one major piece of equipment. The complete process is done on the grate. The object of the process is to transform the pelletized concentrate into hardened pellets that can be used as blast furnace feed or direct reduction furnace feed.

When pellets are fed onto the grate, they are dried and then pre-heated up to a temperature of about 800-900 deg C. The heat used to dry and preheat the pellets is typically hot air pulled from the indurating section and cooling zone. The recycling of the the hot air from the different zones increases energy efficiencies.

In the indurating zone, pellets are brought up to final indurating temps. Hot gas recycled from the cooling zone is further heated up to 1200-1340 °C through a set of burners and pulled through the bed of pellets to complete the slag bonding and mineral bridging to form pellets.

In the cooling zone, pellets are brought down to a suitable temperature for downstream material handling equipment. The gases from the cooling zone are recycled to the indurating area and the pre-heat and drying zone, resulting in the straight grate being the most energy efficient system for producing indurated pellets.

How it works

The straight grate consists of a stationary furnace with a moving set of pallet cars travelling through the furnace on a set of rails. The pellets are fed onto the cars and travel along the furnace where they are dried, heated and cooled.

Because the refractory is stationary and not subjected to rotation and abrasion as the rotary kilns refractory's are, it can be much thicker and keep more heat in the furnace.

The air flow and machine layout is designed to properly indurate all the green pellets and still protect the pallet cars from the high temps of the furnace. To do this, the cars are lined with high temperature stainless steel bars and the sidewalls are also made of high temperature stainless steel. Then the cars are lined with a 70-100mm thick layer of already fired pellets called the hearth layer. These features allow the full indurating temperature to reach all the unfired pellets even the bottom layer without damaging the pallet cars.

The pallet cars are pushed through the furnace by a large sprocket where they are loaded with pellets, then after the pellets are discharged, the pallet cars go around a sprocket at the end of the machine and return to the drive sprocket on a return set of rails.

The cars travel through different temperature zones where the pellets are dried, then pre-heated, then indurated, then finally cooled. There can be multiple burners in some of the zones to allow control of the temperature profile as the cars travel along.

Вариант 2

I. Выполните полный письменный перевод текста.

II. Выполните аннотационный перевод текста.

III. Выполните следующие задания:

1. Выпишите из текста предложения, при переводе которых вы использовали один из следующих приемов: замена простого предложения сложным, замена сложного предложения

простым, членение или объединение предложений, изменение типа синтаксической связяи. Укажите рядом с выписанным предложением прием перевода и перевод.

2. Найдите в тексте и выпишите 2 простых предложения. Переведите.

3. Найдите в тексте и выпишите 2 ложных предложения. Переведите.

Текст для перевода

Lokotrack® LT96™ mobile jaw crushing plant

The Lokotrack® LT96™ mobile jaw crushing plant is the solution for the most difficult transportation conditions. It can be transported in an airplane, by ski lift or on a low bed trailer. The LT96 is our most compact mobile jaw crushing plant, providing great performance especially in recycling and contracting segment.

Features

The sturdy, bolted and pinned design increases the durability of the crusher against shock loads. The swinging function is available through the powerful hydraulic drive.

Metso IC700™ process control system provides you with optimum crushing results. It enables single-button start and stop, and its different access levels are widely used, especially in the rental business. The IC700 is a standard feature in the LT96 jaw plant.

Active Setting Control™ is an additional feature for the Lokotrack LT96. The highly advanced system acts as a setting adjustment system and releases the crusher cavity to open in the event of hitting non-crushable material such as slag or steel bars in concrete. The Active Setting Control allows the operator to read and adjust settings on a display or through radio remote control.

Benefits

The most compact Lokotrack easy to transport
Optional features to make it perfect for recycling applications
Proven Nordberg C96 jaw crusher for hard rock applications

Process overview

The Lokotrack LT96 jaw plant is a primary crusher for recycling or rock-based material. It is typically used on a demolition sites or in construction to size material before transportation.

How it works

Material is fed on to the feeder by excavator or wheel loader. Two stage scalping section removes the fines which can be guided to main conveyor or side conveyor. Output material size is controlled by crusher setting. Crusher is hydraulically driven to ensure trouble free operation. With Active Setting Control™ (ASC) crusher setting opens automatically in case of uncrushable material and returns back to original setting.

Lokotrack® ST2.4™ mobile scalping screen is an excellent fit for any demanding primary screening application. This customer utilizes the screen's high power to separate sand fractions from gravel.

Lokotrack® LT1110™ mobile impact crushing plant

The Lokotrack® LT1110™ is our most compact impactor plant on tracks. The LT1110 is commonly used for crushing medium hard rocks and for recycling. It can crush any recycled material from asphalt to concrete and bricks. The Nordberg® NP1110M™ impact crusher always provides high capacity and a high reduction rate.

Features

Lokotrack® LT1110™ is built around the powerful Nordberg NP1110M impact crusher from the proven NP series. The crusher is specially designed for mobile applications, and features a large feed opening and robust construction for long-lasting, reliable operation. The Lokotrack LT1110 always features high-quality blow bars as standard.

The highly advanced IC700™ process control system controls and adjusts all key parameters in the process for optimum crushing results. By controlling the feeder and crusher it gets the best performance out of the LT1110.

An additional screen module with a return conveyor allows the Lokotrack LT1110 to produce a calibrated end product with just a single unit. The new engine module and hydraulic system provide more power for the crusher and enable lower fuel consumption.

Вариант 3

I. Выполните полный письменный перевод текста.
II. Выполните аннотационный перевод текста.
III. Выполните следующие задания:

1. Выпишите из текста предложения, при переводе которых вы использовали один из следующих приемов: замена простого предложения сложным, замена сложного предложения простым, членение или объединение предложений, изменение типа синтаксической связяи. Укажите рядом с выписанным предложением прием перевода и перевод.
2. Найдите в тексте и выпишите 2 простых предложения. Переведите.
3. Найдите в тексте и выпишите 2 ложных предложения. Переведите.

Текст для перевода

En-Masse Conveyors and Elevators

An Economical Solution

Our en-masse conveyors are designed to offer the most dependable, efficient and ecomonical solution for your material handling requirements.

Plant Simplicity

Metso en-masse machines combine conveying with elevating, performing the work of multiple conventional units. This results in greater overall system availability, headroom savings from the elimination of transfer points, lower installation costs, reduced space requirements, and less electrical wiring and controls.

Totally Enclosed Casings

Material is contained within the casing for dustless conveying, assuring that neither the material nor the outside environment are contaminated. Enclosures can be made to withstand internal pressures. This allows purging with inert gas to minimize the risk of fire or explosion when handling hazardous or dusty materials. All moving machine parts are housed within the casing or enclosed in guards. This ensures maximum safety for plant personnel.

Gentle Handling

Material moves “en-masse” in a solid placid column along with the conveying chain. This provides for a minimum of internal turbulence in the material. Very little degradation of the material occurs when turbulence is reduced.

The unique U-flight design of Metso en-masse conveyors and elevators allows the material column to change direction through a bend section. Solid flights would trap material, causing compaction, degradation and excess power consumption. This is especially significant when handling incompressible materials.

Multiple Inlets and Outlets

A single machine can have a series of inlets and outlets for feeding and discharging at intermediate locations. This minimizes transfer points and reduces degradation

Low Maintenance

Maintenance is simple and does not require personnel with a technical background. Slow component wear rates allow for scheduling maintenance several months in advance.

Ease of Installation

Metso en-masse conveyors and elevators have lower erection costs. Casing sections are shipped pre-assembled with the internal terminal machinery factory installed. Shipping pieces are

matched-marked and bolt together easily at the jobsite. Minimal supporting steel is required and pits (where required) are shallow. Machinery access is only required at the terminals.

Self-Feeding Capacity

Metso en-masse conveyors and elevators can be desigined to feed themselves from hoppers, bins, surge chutes, etc. This self-feeding capability eliminates the need for additional equipment such as feeders or rotary valves.

Rugged Construction

Metso en-masse conveyors and elevators are constructed of robust, long-wearing components, assuring you of high reliability and lower operationg costs. Special materials of construction are available, if required, to combat abrasion and corrosion.

Minimal Space Requirements

Metso en-masse conveyors and elevators require much less space than other equipment for any given capacity. This allows for associated equipment to be more economically positioned and results in a savings in construction costs.

Вариант 4

I. Выполните полный письменный перевод текста.

II. Выполните аннотационный перевод текста.

III. Выполните следующие задания:

1. Выпишите из текста предложения, при переводе которых вы использовали один из следующих приемов: замена простого предложения сложным, замена сложного предложения простым, членение или объединение предложений, изменение типа синтаксической свзяи. Укажите рядом с выписанным предложением прием перевода и перевод.
2. Найдите в тексте и выпишите 2 простых предложения. Переведите.
3. Найдите в тексте и выпишите 2 ложных предложения. Переведите.

Текст для перевода

The Lokotrack ® LT96™

The Lokotrack ® LT96™ is the solution for the most difficult transportation conditions. It can be transported in an airplane, by ski lift or on a low bed trailer. The LT96 is our most compact mobile jaw crushing plant, providing great performance especially in recycling and the contracting segment.

Lokotrack LT96 is built around the Nordberg® C96™ jaw crusher. The sturdy, bolted and pinned design increases the durability of the crusher against shock loads. The swinging function is available through the powerful hydraulic drive. The IC700 ™ process control system provides you with optimum crushing results. It enables singlebutton start and stop, and its different access levels are widely used, especially in the rental business. The IC700 is a standard feature in the LT96.

Active Setting Control™ is an additional feature for the Lokotrack LT96. The highly advanced system acts as a setting adjustment system and releases the crusher cavity to open in the event of hitting noncrushable material such as slag or steel bars in concrete. The Active Setting Control allows the operator to read and adjust settings on a display or through radio remote control.

The Lokotrack ® LT106™

The Lokotrack ® LT106™ combines over 30 years of experience in mobile equipment with 21st century materials and design. It simultaneously cuts operating costs and generates the highest customer value possible.

Lokotrack LT106 is equipped with the Nordberg® C106 ™ jaw crusher, with a proven track record in the toughest of applications. New features, such as a radial side conveyor, high inertia flywheels and an IC700™ process control system that utilizes an ultrasonic material level sensor, offer the best capacity and cost efficiency in the 40-tonne size class.

The CAT ® C9.3 engine with hydraulic drive ensures trouble-free operation and enables the swinging function. Lokotrack LT106 's compact dimensions and agility on tracks mean lower transport costs between and at crushing sites. The chassis design, with good clearance at both ends, enables safe and easy loading onto a trailer. Thanks to the feed hopper sides with a patented and safe hydraulic securing system and radial side conveyor, the unit is ready for crushing or transport within minutes. New design features, such as engine layout and flywheel composite covers, together with spacious service platforms and general excellent accessibility make daily operations safe and easy. You can add flexibility with additional features like a screen module and long main conveyor.

Lokotrack LT116

The Nordberg® C116™ jaw crusher on an advanced chassis makes the Lokotrack® LT116™ relatively light but provides high capacity in contracting crushing. A total weight of around 50 tonnes means easy transportability on roads. The IC700™ process control system is a standard feature in the LT116.

Lokotrack LT116 is built around the Nordberg C116 jaw crusher, benefiting from proven, tested solutions through the latest product development and know-how. The C116 jaw crusher is designed to crush all rock types from the hardest granites to abrasive ones and to recycle materials. The by-pass chute with an optional side conveyor offers versatile working options according to the required crushing process. An independent scalper and a screen module are available for the most demanding feed materials.

The Lokotrack LT116 is a versatile solution, perfectly suited to Lokotrack multistage processes.

Вариант 5

I. Выполните полный письменный перевод текста.

II. Выполните аннотационный перевод текста.

III. Выполните следующие задания:

1. Выпишите из текста предложения, при переводе которых вы использовали один из следующих приемов: замена простого предложения сложным, замена сложного предложения простым, членение или объединение предложений, изменение типа синтаксической связяи. Укажите рядом с выписанным предложением прием перевода и перевод.
2. Найдите в тексте и выпишите 2 простых предложения. Переведите.
3. Найдите в тексте и выпишите 2 ложных предложения. Переведите.

Текст для перевода

Lokotrack® LT120™ jaw crushing plant

The robust Lokotrack® LT120™ jaw crushing plant is an outcome of combining solid experience with a new way of thinking. The thorough design process, that pays attention to each and every detail, guarantees outstanding performance, and premium quality Metso parts ensure a reliable solution. A reliable and efficient mobile crushing plant is the sum of several factors working together smoothly.

The Nordberg® C120™ jaw crusher with its large feed opening provides excellent capacity even in the toughest applications. The hydraulic drive ensures trouble-free operation and enables the crusher direction to be changed in case of blockage. The totally new CAT® C13 engine module provides optimal power to the high inertia flywheels.

Lokotrack LT120 is designed to be safe to operate and maintain. The jaw die bolts are easily accessible, and the composite covers protecting the flywheels can be safely and easily opened. Having good access and proper platforms really make a difference in daily operational safety.

The Lokotrack ® LT120E™ is a revolutionary masterpiece in mobile crushing with electricity. Superior capacity combined with excellent fuel economy provides the lowest sustainable

cost per ton. Lokotrack LT120E is a hybrid mobile crushing plant, its power supplied either by an external network or by the 420 kVA on-board diesel generator. The electrically driven crusher and conveyors enable a highly effective, economical and environment-friendly process.

The Nordberg® C120 ™ jaw crusher provides outstanding capacity due to an excellent nip angle and aggressive linear stroke. Your special requirements are taken into account with the wide range of options designed for the Lokotrack LT120E. For example, a long foldable main conveyor and wide feed hopper extensions help to customize the LT120E for your needs. Precisely designed details guarantee safe operation while proper platforms and composite covers enable easy maintenance. Compact dimensions make the Lokotrack LT120E easy to transport and operate even in the most demanding conditions.

The Lokotrack® LT125™ is the right choice for primary crushing in quarry operations. Its heavy duty design guarantees a reliable solution and high capacity even with the hardest of feed materials. The LT125 can be operated as a standalone unit or in conjunction with secondary and tertiary Lokotrack units as a multistage operation.

Lokotrack LT125 can also be combined with the Lokolink™ LL series mobile conveyor system to eliminate truck haulage of the primary crushed material. The 'Split' version provides rapid installation without a crane and it is the ultimate primary crusher for contracting purposes. This special version is equipped with hydraulic legs for dismantling the crusher and feeder units. The unit can be set up within a matter of hours without any need for craneage.

The Lokotrack® LT1110™

The Lokotrack® LT1110™ is our most compact impactor plant on tracks. The LT1110 is commonly used for crushing medium hard rocks and for recycling. It can crush any recycled material from asphalt to concrete and bricks. The Nordberg® NP1110M™ impact crusher always provides high capacity and a high reduction rate. Lokotrack LT1110 is built around the powerful Nordberg NP1110M impact crusher from the proven NP series. The crusher is specially designed for mobile applications, and features a large feed opening and robust construction for long-lasting, reliable operation.

The Lokotrack LT1110 always features high-quality blow bars as standard. The highly advanced IC700™ process control system controls and adjusts all key parameters in the process for optimum crushing results. By controlling the feeder and crusher it gets the best performance out of the LT1110. An additional screen module with a return conveyor allows the Lokotrack LT1110 to produce a calibrated end product with just a single unit. The new engine module and hydraulic system provide more power for the crusher and enable lower fuel consumption.

Вариант 6

I. Выполните полный письменный перевод текста.

II. Выполните аннотационный перевод текста.

III. Выполните следующие задания:

1. Выпишите из текста предложения, при переводе которых вы использовали один из следующих приемов: замена простого предложения сложным, замена сложного предложения простым, членение или объединение предложений, изменение типа синтаксической связяи. Укажите рядом с выписанным предложением прием перевода и перевод.
2. Найдите в тексте и выпишите 2 простых предложения. Переведите.
3. Найдите в тексте и выпишите 2 ложных предложения. Переведите.

Текст для перевода

The Lokotrack® LT1213™

The Lokotrack® LT1213™ is a fully-equipped mobile impactor plant that combines mobility, high capacity and flexibility in applications. The CAT® C13 engine secures crushing

power and high-quality blow bars put the final touches on performance. The LT1213 can operate as a primary or secondary unit.

Lokotrack LT1213 is easy to operate. The new radial side conveyor, hydraulic locking on the long main conveyor and feed hopper walls are examples of innovations used in the LT1213. The LT1213 can be finetuned for aggregate, quarry or recycling applications with features like a vibrating grizzly or pan feeder under the crusher.

The LT1213 features an advanced gearbox as standard. The Metso gearbox provides the most efficient crusher drive system on the market with assisted start and brake. An optimized hydraulic circuit with an independent fan and stand-by function gives up to 20% lower fuel consumption and more power for the crusher. The crusher service rotation is carried out by a 24V hydraulic power pack. New tools are provided to help change the blow bars and breaker plates. Special attention is paid to access to the service locations and trouble-free material flow. The stand-by function helps to save fuel and reduce noise when idling.

The Lokotrack® LT1213S™ is a fully equipped mobile impactor plant with a high-capacity single deck screen and a return conveyor. The LT1213S can be transported as a single unit on a low bed trailer. The brand new dual-slope screen and radial return conveyor provides high on-board screening capacity and makes the Lokotrack LT1213S easy to operate in closed and open circuits. The screening unit can be docked in just a few minutes.

The LT1213S can be fine-tuned for aggregate, quarry or recycling applications including asphalt with features like a vibrating grizzly or pan feeder under the crusher. The LT1213S has an advanced gearbox as standard. The Metso gearbox provides the most efficient crusher drive system on the market with assisted start and brake. The optimized hydraulic circuit with an independent fan and stand-by function provides up to 20% lower fuel consumption in addition to more power for the crusher. The crusher service rotation is carried out by a 24V hydraulic power pack. New tools are provided to help change the blow bars and breaker plates. Special attention is paid to access to the service locations and trouble-free material flow. The standby function helps to save fuel and reduce noise when idling.

Lokotrack® LT1315™

The Lokotrack® LT1315™ combines a constant high crushing capacity, a broad range of process options and excellent operator-friendliness with the newest dust and noise reduction options. The Lokotrack LT1315 is the ideal machine for high-capacity contracting jobs due to its low transport height, which enables easy transport on a standard trailer. When equipped with the optional over band magnetic separator and pan feeder below the crusher, the trouble-free processing of recycled materials containing rebar is possible.

Lokotrack LT1315 is built around the powerful Nordberg® NP1315™ impact crusher, which can crush medium hard rock types such as limestone as well as all rock-based recycled materials. The NP crushers feature a large feed opening to avoid bridging, a unique triple-wedge hammer retention system for simple and quick locking of wedges, and heavy-duty construction for a long and reliable service life.

Lokotrack LT1315 is equipped with a pan feeder/scalper capable of handling the stickiest feed materials. Additionally, the LT1315 can be equipped with the optional highly efficient twodeck screen and product conveyors. This enables production of one or two calibrated end products. When equipped with the circulation conveyor, the screen oversize fractions can be returned to the crusher.

Вариант 7

I. Выполните полный письменный перевод текста.

II. Выполните аннотационный перевод текста.

III. Выполните следующие задания:

1. Выпишите из текста предложения, при переводе которых вы использовали один из следующих приемов: замена простого предложения сложным, замена сложного предложения

простым, членение или объединение предложений, изменение типа синтаксической связяи. Укажите рядом с выписанным предложением прием перевода и перевод.

2. Найдите в тексте и выпишите 2 простых предложения. Переведите.

3. Найдите в тексте и выпишите 2 ложных предложения. Переведите.

Текст для перевода

The Lokotrack® LT7150™

The Lokotrack® LT7150™ mobile VSI plant is the first choice in final stage crushing for producing highquality cubical aggregates, road base and prime manufactured sand. The LT7150 is built around the proven Barmac® B series vertical shaft impactor featuring rock-on-rock crushing action. The crusher allows quick and easy operation and service, the possibility to steplessly control the product grading, and the production of superior cubical end products.

The Barmac VSI's rotor accelerates the material and continuously discharges it into the crushing chamber. The particle exit velocities range between 45–70 m/s (150–230 ft/s). The crusher runs with a direct hydraulic motor, eliminating the need for V-belts. This allows tip speed to be fully adjustable from the automated control panel.

The LT7150 can be fed by conveyor, excavator or wheel loader thanks to the large feed hopper. The sturdy belt feeder takes the feed to the crusher. The efficient, environmentally friendly CAT® C13 diesel engine powers the Lokotrack LT7150, meeting the latest emission requirements. The market-leading, user-friendly IC400™ process control system features complete automatic crushing process controls, single-button process startup and advanced fault diagnostics.

Lokotrack® LT220D™

Lokotrack® LT220D™ is a revolutionary masterpiece in Metso's world-beating Lokotrack crushing and screening equipment range. The innovative combination of high-performance cone crusher and screen onto the same chassis brings you indisputable benefits. Lokotrack LT220D is a new innovative way to combine crusher and screen onto the same chas - sis. LT220D can be equipped with either proven and powerful Nordberg® GP220™ or HP200™ cone crush - ers. A large 8.4 m 2 (10 yd 2) screen provides high capacity as well as excellent screening efficiency.

By combining the Lokotrack LT220D with a LT106™ primary jaw crushing plant you can produce up to 3 calibrated end products using just two plants. The Intelligent Metso IC™ process control system ensures safe and reliable control of the crushing process. Running both crusher and screen with a single CAT® C13 diesel engine clearly makes a big difference.

The maximum power available for the crusher is achieved by using efficient direct drive power transmission. As a result, fuel consumption is substantially decreased and running costs reduced. Lokotrack LT220D transforms into a very com - pact package. Weighing only 48 tons (105 000 lbs) with side conveyors on board, Lokotrack LT220D is easy to transport on most roads and highways.

Lokotrack® LT330D™

Lokotrack® LT330D™ is an all-electric way to combine a crusher and screen on the same chassis. Despite having a high-capacity crusher and screen, LT330D is still easily transportable enabling efficient contract crushing.

Lokotrack LT330D can be equipped with either Nordberg® GP330™ or HP300™ cone crushers. To achieve maximum performance in all applications, GP330 offers a wide selection of strokes together with a large setting range. HP300 is a proven solution with an installed base of thousands of units around the world. A purposely designed 2 000 mm (6' 7") wide dual-slope screen provides excellent total throughput and complements the combination.

During operation, Lokotrack LT330D is fully electrically driven. To achieve the most economical operation, an external power source can be used. In locations where this is not possible, an integrated CAT® C15 engine and 500 kVA generator power package ensures efficient operation.

After arriving on site, the unit is quickly set-up and ready for action thanks to hydraulic cylinders located in the screen and conveyors. In LT330D, special emphasis has been put on safe maintenance and operation. Extensive platforms and good access make crusher wear part and screen mesh changes quick, easy and safe. Metso IC™ process control system further ensures LT330D operates in a safe and efficient way.

Вариант 8

I. Выполните полный письменный перевод текста.
II. Выполните аннотационный перевод текста.
III. Выполните следующие задания:

1. Выпишите из текста предложения, при переводе которых вы использовали один из следующих приемов: замена простого предложения сложным, замена сложного предложения простым, членение или объединение предложений, изменение типа синтаксической связяи. Укажите рядом с выписанным предложением прием перевода и перевод.
2. Найдите в тексте и выпишите 2 простых предложения. Переведите.
3. Найдите в тексте и выпишите 2 ложных предложения. Переведите.

Текст для перевода

The Lokotrack® LT200HP™

The Lokotrack® LT200HP™, designed for secondary and tertiary crushing applications, combines high capacity, a large feed opening and compact transport dimensions. The crushing plant is built around one of the best-selling cone crushers on the market, the Nordberg® HP200™.

The Nordberg HP200 cone crusher features high capacity and reliability, in addition to top quality and cubical end products as well as low wear part costs. The market-leading, user-friendly IC600™ process control system features complete automatic crushing process controls, single-button process startup and advanced fault diagnostics. It also ensures the steady and constant feeding of the crusher at all times.

The Lokotrack® LT200HPS™ cone plant can be equipped with either one or two-deck detachable screens. This cone plant is designed for efficient secondary and fine crushing and screening applications, where high throughput, a high-quality end product shape, accurate screening and compact transport dimensions are needed.

Lokotrack® LT300HP™ cone plant

The track-mounted Lokotrack® LT300HP™ cone plant, equipped with the proven Nordberg® HP300™ cone crusher, is the most efficient and flexible secondary and tertiary crushing plant on the market that can be transported from site to site as a single unit.

Lokotrack LT300HP has robust construction for the toughest of hard rock crushing sites. The proven HP300 crusher cavity can be selected according to the specific application requirements to achieve high capacity, top end product quality as well as low wear part costs.

The optimized power transmission system makes the LT300HP extremely cost effective. The LT300HP can be optimized for different needs and applications with a variety of optional feeding and screening equipment. An integrated screen module option offers the possibility to produce calibrated end products. The LT300HP is equipped with advanced IC600™ process control system and can also be used as part of a multistage plant together with different mobile screens. Easy transportability on a trailer allows the Lokotrack LT300HP to be used in high-capacity contracting.

Lokotrack® LT300GP™

The track-mounted Lokotrack® LT300GP™ is a flexible mobile crushing plant for any demanding secondary and tertiary crushing application. Lokotrack LT300GP can be operated either as a secondary or tertiary crushing plant.

The robust Nordberg® GP300S™ or GP300™ crushers with a variety of cavities provide high capacity, top end product quality and low wear part costs in all applications. The optimized power transmission system makes the LT300GP extremely cost effective. The LT300GP can be optimized for different needs and applications with a variety of optional feeding and screening equipment. The integrated screen module option offers the possibility to produce calibrated end products.

The LT300GP is equipped with advanced IC800™ process control system and can also be used as part of a multistage plant together with different mobile screens. Compact dimensions ensure that the Lokotrack LT300GP is easily transportable on a trailer.

The Lokotrack® ST2.4™ mobile screen

The Lokotrack® ST2.4™ mobile screen combines high capacity with clean, accurate end products from all feed materials. The unit also offers the lowest cost per ton produced in the size class through improved fuel economy, high capacity and low operating costs.

Lokotrack ST2.4 sets a new standard in terms of set-up time. All that is required to transform the screen from transport to operating position is to unfold the conveyors, set the screen angle and raise the feeder up hydraulically. An optimized hydraulic circuit, Caterpillar® diesel engine, high-quality components and fabrications come as standard with the ST2.4.

All of these combined increase productive time and reduce costly down time. Screening media changes are made very easy for the operator and the unit has an excellent access way created by raising the screen hydraulically to provide a safe, easily-accessible working environment.

Вариант 9

I. Выполните полный письменный перевод текста.

II. Выполните аннотационный перевод текста.

III. Выполните следующие задания:

1. Выпишите из текста предложения, при переводе которых вы использовали один из следующих приемов: замена простого предложения сложным, замена сложного предложения простым, членение или объединение предложений, изменение типа синтаксической связяи. Укажите рядом с выписанным предложением прием перевода и перевод.
2. Найдите в тексте и выпишите 2 простых предложения. Переведите.
3. Найдите в тексте и выпишите 2 ложных предложения. Переведите.

Текст для перевода

Lokotrack ST2.8

Lokotrack ST2.8 makes the scalping of sticky recycling material look easy. The design principle has been simple: to optimize capacity in demanding scalping and to minimize unprofitable time on site. The stickier the feed material the more throw needed in the scalping screen.

Lokotrack ST2.8 has the biggest eccentric throw on the market to make it the best unit for the screening of top soil, demolition waste and river gravel. Additionally, ST2.8 can be fine tuned even for sand applications. The clearance under the screen has been increased by 20% and the bottom deck area is larger compared with ST272™. In multistage crushing processes, the removal of fines is easy with a two-way split option.

This feature combines material flow from the first and second deck to the main conveyor and maximizes the capacity and efficiency of the crushing process. Belt feeder and chevron belts are standard features of Lokotrack ST2.8. Lokotrack ST2.8 is ready for screening in minutes thanks to hydraulically operated conveyors and screen including a patent pending feeder mechanism. Lokotrack ST2.8 is 25% lighter than similar machines. Because the weight is lower, transportation

is easier. The fuel-efficient scalping process can be started with safe push buttons or by the optional Metso IC300™ process control system.

Selective precrushing, recrushing of metal scrap with Metso Eta®Crush series ZM/ZMF

The unique design gives the machine great advantage

With the development of the Metso EtaCrush®, even smaller metal shredders with a driving capacity of 250 to 750 kW display refinements which have a highly favorable effect on specific energy consumption, throughput, size of fragmentation and wear and maintenance conditions.

Optimum double-grid / anvil combination

This design helps to reduce power consumption while at the same time increasing throughput.

Special material and air guidance

This has a positive effect on power consumption and reduces the costs for a dust-extraction system to a minimum.

Hydraulic removal of coarse pieces

Solid pieces that cannot be crushed are removed during the crushing process without interruption – and without crossing the material flow again.

Hydraulic locking of rotor bearing

This optional device enables the rotor to escape in the event of solid pieces getting between the rotor and the housing bottom. This keeps damage to the rotor to a minimum. You can add this feature at a later stage.

Special speed control of the rotor

The new optional available speed control of the rotor offers operators excellent processing flexibility. Degree of fragmentation, material disintegration and wear can all be optimized for the widest variety of scrap metal.

Electronically controlled water injection

This is recommended for shredding without dust extraction. It clearly reduces or even prevents the mission of „blue smoke“ when oily materials are being processed. You can add this feature at a later stage.

Effective wear and maintenance prevention

The tiltable housing, Metso Recycling’s long-life caps that are used to protect the hammer shafts and rotor disks, the special wear protection of housing parts that are subject to heavy loads, the design and arrangement of wear protection elements, and the nature and arrangement of their fixtures, all help to keep the costs for wear and maintenance to an absolute minimum.

Вариант 10

I. Выполните полный письменный перевод текста.

II. Выполните аннотационный перевод текста.

III. Выполните следующие задания:

1. Выпишите из текста предложения, при переводе которых вы использовали один из следующих приемов: замена простого предложения сложным, замена сложного предложения простым, членение или объединение предложений, изменение типа синтаксической связи. Укажите рядом с выписанным предложением прием перевода и перевод.
2. Найдите в тексте и выпишите 2 простых предложения. Переведите.
3. Найдите в тексте и выпишите 2 ложных предложения. Переведите.

Текст для перевода

Solid and state-of-the-art shredder technology

Metso Recycling offers the Metso EtaShred® series for the cost-effective processing of light to medium-heavy mixed metal scrap, including bales. Metso Recycling has installed a large number of shredders around the world, and by choosing us you work with a supplier who knows exactly how a shredder must be designed and engineered for long-term economic operation. Low specific energy requirements, high production figures, flexible operating capabilities, outstanding availability and a cost-saving maintenance and repair concept result in favorable operating costs for the Metso EtaShred® series.

As production behavior such as particle size and scrap density is regulated by hydraulically operated devices, product quality demands can be set at the touch of a button. Appropriate measures are taken to comply with the limits on dust, noise and vibrations specified by the national authorities. As far as special project requirements are concerned, we have developed processes which completely eliminate the need for shredder de-dusting.

High operating reliability

Several protective features increase availability and prevent or minimize the risk of damage due to overloading by the unavoidable unshreddable pieces of scrap. Hydraulic locking of the rotor bearings enables the rotor to escape in the event of solid pieces between the rotor and the housing getting bottom.

A hydraulically operated ejection door enables solid unshreddables to be removed during operation. The hydraulic anvil clamping device eliminates the need for regular checking and tightening of anvil screws, which tend to loosen under continuous impact stress. Furthermore, the hydraulic device simplifies anvil changing. Our special Metso Recycling “long-life caps” protect the hammer pins as well as the rotor disks and increase the flywheel effect of the rotor, so that fewer energy peaks occur.

Plant control one of the best systems

Using our Metso Recycling Plant Control System (PCS) for process and cost supervision means a wide range of operational data can be visualized, enabling the plant management to evaluate current operation efficiency, see the reasons for downtimes over a given period, and learn the specific influence on wear and energy consumption of different input materials. Furthermore, PCS greatly simplifies maintenance planning.

Quick and easy maintenance

Our design features help save time and money by facilitating inspection and maintenance work. The hydraulic housing locking makes it easy to lock and unlock the middle and lower housing sections. The hydraulic device for disassembling the hammer axles speeds up hammer exchange. Our rotor lifting device makes for easy access to lower parts of the machine. The PLC Telediagnosis via Teleservice, which is available as an optional extra, offers quick assistance with trouble shooting. Problems involving electronics and software can be solved without delay by our service engineer from his office. Moreover, the right expert and the necessary spare part can be identified in the event of mechanical problems.

The new Metso EtaCut® II

The name Metso EtaCut® incorporates the Greek letter η (eta), the technical symbol for efficiency which illustrates the extremely high effectiveness and low life-cycle costs of the Eta product lines. These are reflected in increased processing flexibility, low specific power consumption, enhanced operational reliability and reduced maintenance costs due to the service friendly design. The new generation also features simplified installation and is designed for easier transportation. This includes not only the frame and the box, but also hydraulic pipes, control blocks, hydraulic units, and supporting structure. Same time it reduces assembly times at the site as well as improves maintenance conditions. When developing the new Metso EtaCut® II we strongly focused on improving the usability of the machine.

3. Методические указания по выполнению контрольной работы и варианты контрольной работы за 6 семестр.

3.1 Методические указания по выполнению контрольной работы за 6 семестр

1. Внимательно прочитайте представленный ниже справочный материал «Лексические особенности перевода» и пошаговую инструкцию выполнения полного письменного и аннотационного перевода, представленную в приложении.

Лексические особенности перевода: основные способы перевода слов

При переводе любого текста, как правило, устанавливается соответствие между значениями слов английского и русского языков. Например, слово «book» совпадает по смыслу со словом «книга». Чтоб выполнять перевод быстро, нужно знать русское соответствие каждого английского слова, потому что это самый часто применяемый способ передачи на русский язык английских слов.

Всего существует три типа соответствий между словами двух языков (Рисунок 6).

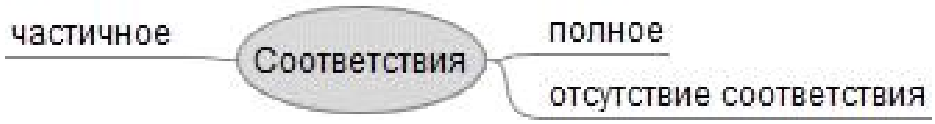

Рисунок 6 – Соответствия

Полное соответствие – значение английского слова полностью соответствует значению одного русского слова. Другое название – эквиваленты. Число эквивалентов невелико (Рисунок 7).

Рисунок 7 – Эквиваленты

Частичное соответствие – значению одного английского слова частично соответствуют значения нескольких русских слов, например actual – настоящий, текущий, подлинный, действительный, текущий.

Это самый распространенный случай при сопоставление слов двух языков. При переводе таких слов учитывается контекст, от которого зависит выбор нужного значения.

Отсутствие соответствия или безэквивалентная лексика - полное отсутствие соответствия английскому слову в русском языке (Рисунок 8).

Рисунок 8 – Безэквивалентная лексика

Примеры названий – фамилии Guerin, Torn, организация Bionanotech и т.п.
Примеры реалий (слов, обозначающих явления, которые отсутствуют в жизни русскоговорящих людей) - shepherd's pie – «пастуший пирог» или картофельная запеканка, Indian summer – бабье лето

Примеры слов, для которых по каким-то причинам нет соответствий в русском языке – paramedic – медик парашютно-десантных войск.

Для передачи слов, не имеющих непосредственных лексических соответствий в русском языке, существует ряд приемов перевода (Рисунок 9).

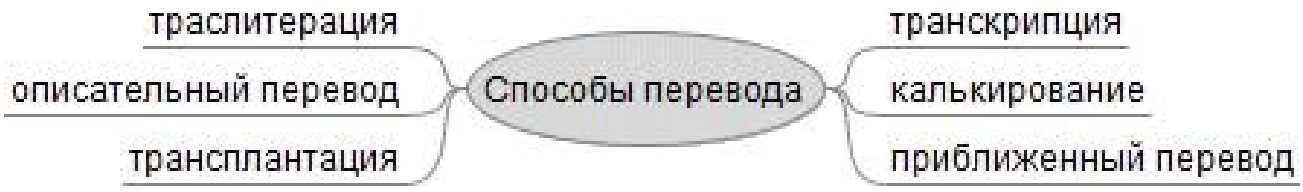

Рисунок 9 – Способы перевода

Транслитерация – английские буквы слова передаются русскими буквами: *Waterloo – Ватерлоо, boss – босс*
Транскрипция – передача русскими буквами звучания английского слова*: file – файл, business – бизнес, interface – интерфейс*.
Калькирование – перевод по частям английского слова или словосочетания и последующее сложение частей без изменений: *skyscraper – небоскреб, brain drain – утечка мозгов.*
Описательный перевод – передача значения слова с помощью объяснения: *demo – демонстрационная версия программы, tracker - программа для обработки аудио-файлов.*
Приближенный перевод – приблизительное обозначение инокультурного элемента, подбор аналога: *broadcast quality - высочайшее качество звука. associate professor – доцент.*
Трансплантация – слова в переведенном на русский тексте остаются в англоязычном написании для придания переводу учености. Такие слова либо вводятся без пояснений (например post scriptum), если они общеизвестны, либо сопровождаются сносками и комментариями, если эти слова не знакомы читательской аудитории.

При переводе большую роль играет контекст – узкий (словосочетание или предложение) или широкий (абзац, глава или весь текст). Пример узкого контекста для слова *glass*:
water glass – стакан воды
opera glass – театральный бинокль
sun glasses – солнечные очки
magnifying glass – лупа

Лексические особенности перевода: перевод терминов

Термин – слово или словосочетание, которое называет понятие какой-либо области знаний.

Большая часть терминов переводится с помощью эквивалентов, то есть точных соответствий. Это касается терминов с латинскими и греческими корнями (*therapy*), а также англоязычных терминов, обозначающие технологические инновации (*MP3*).

Существуют также многозначные термины, значение которых выбирается при учете контекста: например, слово *valve* переводится как *клапан, вентиль, задвижка, затвор, кран, электронный прибор.*

При переводе терминов используются уже упомянутые выше приемы.
Транслитерация – *electron –электрон, collector – коллектор*
Транскрипция –. *electrolyte – электролит*

Калькирование – *electromagnetic induction - электромагнитная индукция*
Описательный перевод – *hovercraft–воздушное судно на воздушной подушке*
Выбор при переводе между транскрибированием и русским вариантом – *relay –реле или переключатель, radiation – радиация или излучение*
Выбор между транскрибированием и описательным переводом – *tachograph – тахограф или прибор для измерения частоты вращения деталей машин и механизмов*

Что касается терминов-словосочетаний, они делятся на 2 группы:
а) совпадающие по структуре с соответствующими словосочетаниями: *natural convection – естественная конвекция*
б) мотивированные термины-словосочетания, не допускающие дословного перевода: *control rod - графитовый стержень*

Особую трудность при переводе представляют многословные термины-словосочетания, которые состоят из слов не связанных между собой предлогами, артиклями и другими служебными словами. Обычно перевод такой цепочки начинают с последнего слова – ядра(существительного): *linkage (связь) editor (редактор) - редактор (чего?) связей – редактор связей; vinil (винил) composition (состав) tile (плитка) – плитка (какая?) винилового состава – плитка винилового состава.*

Лексические особенности перевода: перевод псевдоинтернациональной лексики и неологизмов

Псевдоинтернациональные слова. В английском языке много слов, заимствованных из других языков. Среди заимствований выделяют интернациональные слова, не вызывающие затруднений при переводе в силу полного совпадения с русским словом по форме и значению: *contrast – контраст, atom – атом и т.п.* Однако, есть группа слов, похожих по форме и написанию на русские слова, но отличные от них по значению частично или полностью: *industry – не только индустрия, но и промышленность, resin – не резина, а смола и т.п.*

Вторая группа и называется псевдоинтернациональной лексикой или «ложными друзьями переводчика» и представлена тремя подгруппами:
1. Английское слово шире по значению, чем похожее на него русское слово: *meeting- не только митинг, но и собрание, встреча, заседание, дуэль; aggressive – только агрессивный, но и энергичный, настойчивый; champion – не только чемпион, но и боец, воин.*
2. Русское слово шире по значению, чем похожее на него английское слово: *auditorium – аудитория (помещение) и аудитория (слушатели), в английском это слово означает только помещение.*
3. Английское и русское слово, сходные по форме, совершенно не схожи по содержанию: *accurate – не аккуратный, а точный; bullion – не бульон, а слиток золота; clay – не клей, а глина; complexion – не комплекция, а цвет лица; compositor - не композитор, а наборщик; data – не дата, а данные.*

Неологизмы. Это новые слова, которые недавно вошли в лексикон и недавно зафиксированные или еще не зарегистрированные в словарях**.**

Так как словари не успевают за появлением неологизмов, при переводе следует опираться на контекст и анализировать структуру слова или словосочетания. Неологизмы переводят с помощью уже известных способов: транскрибирования, транслитерации, калькирования и описания.

Транскрибирование – offshore company – оффшорная компания, blockbuster - блокбастер, badge - бэдж, invoice - инвойс, joy-stick – джойстик.
Транслитерация – adapter - адаптер, trigger - триггер, holding - холдинг, multimedia – мультимедийный.
Калькирование – certificate of origin – сертификат происхождения, linkage editor – редактор связей, container vessel - контейнеровоз.

Описательный перевод – stylus – пишущий элемент, monorail – подвесная однорельсовая железная дорога

2. Ознакомьтесь с заданиями контрольной работы и сопоставьте каждое с темами теоретической части.

3. Выполните задания по порядку, начиная с полного письменного перевода текста.

3.2 Варианты контрольной работы за 6 семестр

Вариант 1

I. Выполните полный письменный перевод текста.

II. Выполните аннотационный перевод текста.

III. Выполните следующие задания:

1. Найдите в тексте термины. Определите, сложные они или простые.
2. Найдите в тексте неологизмы. Переведите их.
3. Найдите в тексте интернациональные слова и переведите их.
4. Найдите в тексте псевдоинтернациональные слова (ложные друзья переводчика). Определите группу. к которой они относятся. Переведите.
5. Найдите в тексте безэквивалентные слова. Переведите.
6. Укажите имена собственные, географические названия, если есть. Переведите и укажите способ перевода (транслитерация или транскрипция).
7. Укажите устойчивые выражения. Переведите.

Текст для перевода

Modern tools

Many mechanical engineering companies, especially those in industrialized nations, have begun to incorporate computer-aided engineering (CAE) programs into their existing design and analysis processes, including 2D and 3D solid modeling computer-aided design (CAD). This method has many benefits, including easier and more exhaustive visualization of products, the ability to create virtual assemblies of parts, and the ease of use in designing mating interfaces and tolerances.

Other CAE programs commonly used by mechanical engineers include product lifecycle management (PLM) tools and analysis tools used to perform complex simulations. Analysis tools may be used to predict product response to expected loads, including fatigue life and manufacturability. These tools include finite element analysis (FEA), computational fluid dynamics (CFD), and computer-aided manufacturing (CAM).

Using CAE programs, a mechanical design team can quickly and cheaply iterate the design process to develop a product that better meets cost, performance, and other constraints. No physical prototype need be created until the design nears completion, allowing hundreds or thousands of designs to be evaluated, instead of a relative few. In addition, CAE analysis programs can model complicated physical phenomena which cannot be solved by hand, such as viscoelasticity, complex contact between mating parts, or non-Newtonian flows.

As mechanical engineering begins to merge with other disciplines, as seen in mechatronics, multidisciplinary design optimization (MDO) is being used with other CAE programs to automate and improve the iterative design process. MDO tools wrap around existing CAE processes, allowing product evaluation to continue even after the analyst goes home for the day. They also utilize sophisticated optimization algorithms to more intelligently explore possible designs, often finding better, innovative solutions to difficult multidisciplinary design problems.

Modern manufacturing

Modern manufacturing engineering studies include all intermediate processes required for the production and integration of a product's components.

Some industries, such as semiconductor and steel manufacturers use the term "fabrication" for these processes.

Automation is used in different processes of manufacturing such as machining and welding. Automated manufacturing refers to the application of automation to produce goods in a factory. The main advantages of automated manufacturing for the manufacturing process are realized with effective implementation of automation and include: higher consistency and quality, reduction of lead times, simplification of production, reduced handling, improved work flow, and improved worker morale.

Robotics is the application of mechatronics and automation to create robots, which are often used in manufacturing to perform tasks that are dangerous, unpleasant, or repetitive. These robots may be of any shape and size, but all are preprogrammed and interact physically with the world.

Вариант 2

I. Выполните полный письменный перевод текста.

II. Выполните аннотационный перевод текста.

III. Выполните следующие задания:

1. Найдите в тексте термины. Определите, сложные они или простые.
2. Найдите в тексте неологизмы. Переведите их.
3. Найдите в тексте интернациональные слова и переведите их.
4. Найдите в тексте псевдоинтернациональные слова (ложные друзья переводчика). Определите группу. к которой они относятся. Переведите.
5. Найдите в тексте безэквивалентные слова. Переведите.
6. Укажите имена собственные, географические названия, если есть. Переведите и укажите способ перевода (транслитерация или транскрипция).
7. Укажите устойчивые выражения. Переведите.

Текст для перевода

Ames Lathes - U.S.A.

When Bliss Charles Ames opened his machine-tool works on Ash Street in Waltham, Ma. in the late 1890s, he was joining an exclusive club of manufacturers* who, though they produced relatively few machines, made a significant contribution to improving the standards of quality and precision employed in American manufacturing industry. Amongst Ames's fellow high-class machine-tool makers* in Waltham were Stark, the American Watch Tool Company, The Waltham Machine Works, Wade and F. W. Derbyshire.

Ames quickly became well-known (as the B.C. Ames Co.) for a range of very accurate machine tools and precision measuring equipment; they did not produce a huge number of machines - not only was the specialised marked for precision bench lathes and millers relatively small but competition fierce.

In the early 1920 an average of just one hundred No. 3 lathes were being produced each year, a number that fell to a low of only two or thee at the height of the depression in the early 1930s; sales picked up to nearly fifty a year during the middle to late 1930s followed by an explosion in growth during the years of World War 2 when, if the serial numbers are to be believed, as many as 806 left the factory between 1942 and 1943. The entire range of No. 3 and EH3 Bench Lathes, Bench Millers, Slotters and Shapers were all made until 1957, when production of the lathes only appears to have been continued using dual Stark and Ames branding - the catalogs from that point on (if not the lathes) carrying the names of both companies.

Today the Ames brand name lives on in the precision engineering field being used on high-quality measuring and inspection equipment.

Ames 83/8" x 21" precision bench lathe 1900 – 1930

The small bench machine, typical of an Ames lathe, was available with a complete range of screw and lever-feed slides, different tailstocks, various quick-release collet fittings for the headstock spindle, relieving and milling attachments and special accessories for production engineering.

Like many other Precision lathes the Ames' 3-step cone pulley had its smallest diameter by the spindle nose - so allowing the front bearing to be increased in size and surrounded by a greater mass of supporting metal.

Unusually, the spindle carried two rings of indexing holes around the larger of the two pulley flanges - and a further ring of holes around the smaller flange designed to assist in the removal of chucks and collets, etc., from the spindle nose.

Although the beds carried serial numbers, Ames claimed that any headstock, bed and tailstock combination would line up accurately, so allowing the easy transfer of specialised production equipment from machine to machine within a factory. Broaching is a fairly unusual process to carry out on a small lathe but it is perfectly possible, given sharp tools and some care, to make a success of it.

Вариант 3

I. Выполните полный письменный перевод текста.

II. Выполните аннотационный перевод текста.

III. Выполните следующие задания:

1. Найдите в тексте термины. Определите, сложные они или простые.
2. Найдите в тексте неологизмы. Переведите их.
3. Найдите в тексте интернациональные слова и переведите их.
4. Найдите в тексте псевдоинтернациональные слова (ложные друзья переводчика). Определите группу. к которой они относятся. Переведите.
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7. Укажите устойчивые выражения. Переведите.

Текст для перевода

Headstocks

The headstock was available in two sizes (but of the same centre height) to take collets with a maximum capacity of either 5/8" or 1" with spindle bores of 3/4" and 11/8" respectively. The collets could be of either the draw-in type, or closed by a lever mechanism.

The hardened spindle was machined from a solid bar of alloy steel, case hardened then ground and lapped. This method of production produced a spindle which was hard on the outside but "soft" within - and consequently extremely tough.

The outside of the spindle front was ground to a 4 degree taper onto which faceplates, chucks and the larger sizes of step collets and their closers could be drawn. The inside of the spindle nose was ground to an 11 degree taper to seat and close collets.

The cast-iron headstock bearings, oil-grooved and finely lapped, were parallel on the inside and tapered on the outside. Adjusting nuts, acting on square-section threads, drew the bearings into tapered seats within the headstock casting and compressed them concentrically.

The combination of a hardened steel spindle running in cast-iron bearings was a proven method of obtaining long life and cool running; the spindle end thrust was taken by a ball race, positioned immediately behind the spindle nose, and carrying an adjusting ring to limit end play. The location of the thrust bearing, immediately behind the chuck on the "end" of the spindle, was unknown on any other lathe of this (precision) type.

The larger of the pulley flanges carried two rings of 60 and 72 indexing holes, with a further ring of larger holes around the smaller flange which designed to assist in the removal of chucks and collets, etc., from the spindle nose.

Later Ames lathes followed the lead of Wade in fitting their bench lathes with precision ball-bearing headstocks - the lathe illustrated here is so equipped.

Step chucks were used to hold diameters larger than the headstock spindle would admit. They were made of cast iron and supplied with a 1/4" hole drilled through the centre.

To use them, the face was turned out to a suitable depth and diameter to accommodate the workpiece, which was then tightly gripped as the collet was drawn back against the closing ring. They were made in 2" and 4" diameters for both the 5/8" and 1" capacity headstocks.

The Three-bearing, 2-step pulley Headstock was designed for production work. An extension at the left-end of the headstock carried a third bearing which supported an integral, quick-action collet opening and closing device.

The device was intended to overcome the inherent tendency of collets to draw work backwards when they were tightened, making it difficult to obtain exact depth setting on repetition work. In this design the collet remained "stationary" whilst, ingeniously, the headstock spindle moved forwards and backwards to tighten and release it.

Вариант 4

I. Выполните полный письменный перевод текста.

II. Выполните аннотационный перевод текста.

III. Выполните следующие задания:

1. Найдите в тексте термины. Определите, сложные они или простые.
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7. Укажите устойчивые выражения. Переведите.

Текст для перевода

Stands & Drive Systems

As with other makes of precision bench lathe, the Ames could be driven by a conventional wall or ceiling mounted flat-belt drive countershaft unit, the layout drawing for which are at the bottom of this page, or fitted to a 48" long, 25" wide and 36" self-contained and rather elegant cabinet with a 3-speed gearbox. The stand was sturdily constructed from oak with a top surface edged with hardwood and covered in thick linoleum - an early form of plastic flooring very familiar to an "earlier generation". Two cast-iron uprights carried a cross member in hardwood on which was mounted the speed-change gearbox and, optionally, a drive for grinding and milling attachments carried on the lathe's top slide.

A 0.5 hp motor was fitted in the left-hand compartment, behind two doors, and the stand was either cut away on the right-hand side to allow space for the operator to sit down whilst working - or fitted with a nest of drawers. The motor drove upwards to the gearbox, the front of which was removable; inside the casing were three sets of constantly-meshed helical gears, running within an oil-tight bath and each fitted with a heavily-built steel friction cone clutch that allowed an instantaneous change of speed. The drive from the motor entered from a 7" diameter pulley on the lower shaft and passed, via the gears and clutches, to an upper shaft that carried a cone pulley to

match that of the lathe beneath it. Unusually for a countershaft of this era, the shafts ran on double-row ball races whilst the clutch thrust bearing was also of the ball bearing type.

Controlled by foot pedals, the clutches were connected by wires to the engagement mechanism.

Later stands were built on heavy, pressed steel legs with linoleum-covered, hard-wood faced wooden tops and used an underdrive system with either a 3-speed gearbox or a mechanical infinitely variable-speed unit.

Standard two-speed countershaft as offered from the earliest days of the Ames Precision Bench Lathe.

Described as being of the "Wall Rod" type this unit was designed to overcome the limitations of traditional countershafts were the wall brackets also formed the supports for the pulley spindles. The system relied upon two 1-inch diameter cold-rolled steel bars set 4 inches apart that connected together two cast-iron wall brackets. The castings that held the self-aligning bearings for the 3/4"-diameter ground finished pulley spindle were separate units and could be easily and independently slid along the bars until the drive and driven pulley were in line with their respective mates both above and below. In the picture above the two pulleys to the left are both of the "tight and loose" (UK fast-and-loose) kind where one pulley was free to rotate on the shaft (the idle pulley) and the other fastened to it (the drive pulley). By operating a foot pedal the machine operator could cause a striker rod on either the larger (7") or smaller (5") pulley to flick the belt across from idle to drive and so change the speed from a high of 720 rpm to a low of 160 rpm.

Вариант 5

I. Выполните полный письменный перевод текста.

II. Выполните аннотационный перевод текста.

III. Выполните следующие задания:

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7. Укажите устойчивые выражения. Переведите.

Текст для перевода

Barber-Colman Lathes

Famous for their range of gear-hobbing machines, the Rockford, Illinois-based Barber-Colman Company also manufactured limited numbers of a small range of very high quality, heavily-built lathes. Their connection with lathes began in 1952 when Frederick W. Richmond (a corporate raider) obtained control of the Hendey stock. His claimed intention was to help the company by an infusion of cash to improve its position in the market place. However, he did just the opposite, selling off the product lines, the buildings, the land and any other assets. The Barber Colman Company, of Rockford, Ill. bought the Hendey line of lathes and shapers. While accepted wisdom is that this took place at the beginning of 1955, evidence has come to light that BC may have had an interest in the 2E lathes as early as the end of 1953. On the 2nd. February, 1955, a meeting was held at Barber-Coleman to determine how a new serial number system could be set up and which models would be kept in production.

It was decided that lathe serial numbers would began at 40,001 (and shaper at 4001) with the models chosen to remain in production (and their designations) being: 9" Tool and Gauge Makers

lathe (aHL); #2 General Purpose lathe (bHL); 12" geared head lathe (12cHL); 14" geared head lathe (14cHL); 16" geared-head lathe (16cHL) with 8 speeds; 12" Shaper (aHK) and the 16"-20" Shaper (bHK). Serial numbers would indicate just the number produced in each group, not the total number made - whilst Hendey serial numbers had always represented the total production of a particular machine type, regardless of the various sizes. In 1956, Barber Colman decided to develop a line of lathes of their design and these were subsequently introduced over a two year period.

The models, with factor type symbols, were:
2013 and 2516 (DHL) Geared-head Lathe
1307 x 24 (HHL) Toolroom lathe
1610 T (GHL) Toolroom lathe
1610 (THL) Facing, turning and boring lathe.

When introduced, the DHL series had 32 spindle speeds, increased after a year to 36 - with the HHL, GHL and THL all having variable-speed drive. Although production of complete machines ceased in 1962, parts continued to be manufactured 1978.
Production having started, concentrated of effort appears to have focused on four models that were listed in the sales literature as: the 1610 production; three toolroom-class machines, the 1610T, 2013T and 2516T toolroom - and a super-precision lathe, the 1307T.

Barber-Colman 1610 and 1610T

Given a model number reflecting the nominal swing over the bed - 16.5 inches - and the swing over the cross slide - 10.25 - the 1610 was also manufactured with its swing increased to 20 inches. The lathe had a capacity between centres of 30 inches and could be had as a standard model, intended for production turning and facing work, or to a proper toolroom specification with screwcutting.

Вариант 6

I. Выполните полный письменный перевод текста.
II. Выполните аннотационный перевод текста.
III. Выполните следующие задания:

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7. Укажите устойчивые выражения. Переведите.

Текст для перевода

Barber-Colman 2013T and 2516T

Varying only in their capacity - a swing of 21 inches (13" over the cross slide) for the 2013T and 25 inches (16" over the cross slide) for the 2516T - both lathes were of identical mechanical construction and intended for serious, commercial work. In addition to a massive bed of great depth and width, the general specification was impressive. No fewer that 36 spindle speeds were available that could be ordered on a new machine as 9 to 1000 r.p.m; 13 to 1500 r.p.m or 18 to 2000 r.p.m on the 2013T - and with a choice between the two slower ranges on the 2516T.

A choice of motors was also offered, the customer being able to select either a 10 or 15 h.p. unit for general work, or 20 h.p. if the lathe was going to tackle work of the heaviest kind. The headstock was very robust, with the 2-inch bore spindle running in high-class, super-precision bearings and fitted with either a D1-6" Camlock or L1 taper nose to the customer's choice. Simple

rotary controls on the face of the headstock were used to select the spindle speeds and automatic pressure lubrication was provided for the hardened and ground gears.

Completely enclosed against the ingress of dirt and chippings, the screwcutting and feeds gearbox offered 66 pitches (from 2 to 120 t.p.i.) and 66 feeds (0.0015" to 0.091") - the latter able to be disengaged on the longitudinal feed by automatic, pre-set micrometer-equipped stops.

To assist with screwcutting a built-in thread-dial indicator was standard and the hardened and ground cross-feed screw was equipped with a ball-type thread-chasing stop. In anticipation of much production work involving threads, the leadscrew clasp nuts were fed automatically with a supply of oil. Occupying a floor space of 103.5" x 43 " when fitted with the optional hydraulic tracer equipment) the 2013T the weighed approximately 4125 lbs and the 2516T 9000 lbs and an area 129" x 52".

Barber Colman 1307T

A very modern-looking lathe with crisp, angular styling, the 1307T was described by the makers as being intended for *super-precision machining*. With a swing of 13 inches, a clearance over the cross slide of 7 inches and admitting 30 inches between centres, the 1307T was fitted with an infinitely-variable drive (powered by a 2-speed 4/5 h.p. motor controlled by a static silicon rectifier) that gave a most useful spread of revolutions - 4 to 3000 r.p.m. However, with a large chuck mounted on the end of the 1.5-inch bore, D1-4" spindle nose, the operator would have been cautioned against running at top speed, 3000 r.p.m. being reserved for chucks of 6-inch diameter, or less. The rest of the specification was similar to that of the 2013T: a screwcutting and feeds gearbox offering 66 pitches from 2 to 120 t.p.i. and feeds from 0.001" to 0.120", automatic micrometer stops on the longitudinal feed, a hardened and ground cross-feed screw and automatic lubrication of the leadscrew half-nuts.

Occupying a floor space of 70" x 38" when fitted with the optional hydraulic tracer equipment) the lathe weighed approximately 3200 lbs.

Вариант 7

I. Выполните полный письменный перевод текста.

II. Выполните аннотационный перевод текста.

III. Выполните следующие задания:

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7. Укажите устойчивые выражения. Переведите.

Текст для перевода

Adcock & Shipley (Ryder & Son)Combination Machine Tool

Adcock and Shipley manufactured and factored a vast range of engineering equipment including, from the early to late 1950s, two sizes of a remarkable "Universal Machine Tool", a machine not unlike that produced in Japan as the Dainichi. It was believed that the built took place not in Adcock's Leicester factory but at that of Thomas Ryder & Son Ltd. of Turner Bridge, Bolton. Ryder also sold the larger Universal under their own name - but were better known for their piston-ring machines, a small range of specialist lathes and the remarkable "Verticalauto", a vertical multi-spindle automatic that, despite sounding very Italian, was all-British.

Boasting a very complete specification, the "Universal" offered a lot in a relatively small space - the smaller occupying a footprint of only 7 ft. by 3 ft. and the larger 11' 6"b y 3' 8" with each including a screwcutting and power-feeds lathe, a cylindrical/universal grinder, a vertical/horizontal miller and a drill. Instead of a sliding or elevating beds and headstock as used on many other machines of the same type, the Ryder was built around a conventional centre lathe with each separate machine tool being self powered and capable (apart from the grinder) of all being run at the same time. The unit was designed originally for shipboard use and met the various specifications laid down by the British Admiralty for that purpose. Some examples must also have been exported with one, serial number 692, order 19230 dated June, 1959, being delivered to the New Zealand Navy in 1960.

Not only were the machines very versatile, heavily built and well finished, they were also constructed to be as "shockproof" as possible and - on a smaller boat either would indeed have been a most useful tool for assisting with general maintenance and repairs. It is rumoured that only twenty-four of the smaller type were made (it was just too limited in work capacity to appeal) while figures for the larger are unknown. Some are believed to have gone into navel vessels - though not submarines, whose workshops were too small, the machine's one great disadvantage, the generous working space required on all four sides counting against it. Extremely substantial, as one would expect, the main base of the smaller type was welded up from steel plate and weighed in the region of 1 ton. The deck, around 0.625 inches thick, was increased to a thickness of 1 inch in raised profiled areas that corresponded to the positions of the milling machine column and the secondary bed on which the grinder and lathe sat. The lower section of the base, 0.625 inches thick, was connected to the top by a series of plates that created compartments that housed the switchgear, and main and suds pump motors for the lathe and milling machine, a motor to drive the table of the grinder - with the remaining spaces used for storage.

Lathe:

Of modest capacity, with just an 8" swing and 18" between-centres, lathe element of the Universal had an all-geared head that gave spindle speeds of 58, 92, 137, 198, 300, 470, 707 and 1020 rpm. driven by a 3 h.p., 1760 r.p.m. 3-phase motor. Surprisingly, the spindle had a bore of just 0.75", hardly adequate for the sort of work the machine might have been called upon to perform. A simplified screwcutting and feeds gearbox was fitted that offered a good range of threads between 4 and 100 t.p.i. Metric pitches were also available, but details of their inclusion into the gearbox, or of the necessary conversion set, are not known.

A separate power shaft was used to provide sliding and surfacing feeds, so leaving the leadscrew exclusively for screwcutting.

Вариант 8

I. Выполните полный письменный перевод текста.

II. Выполните аннотационный перевод текста.

III. Выполните следующие задания:

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7. Укажите устойчивые выражения. Переведите.

Текст для перевода

Lathe

Cast with heavy diagonal braces between its walls, the V and flat-way lathe bed was very substantially constructed and of a useful size. The centre height was around 6 ½ inches with a small removal gap piece allowing an extra 4 inches or so on diameter to be turned. The distance between centres was approximately 48 inches and 9 spindle speeds of 21, 30, 45, 74, 106, 161, 244, 352, 533 rpm were available controlled by the juxtaposition of levers on the front face of the headstock.

A separate shaft drove the power sliding and surfacing feeds with the drive passing through a safety-overload clutch. Individual engagement levers, with reverse, were provided for both the feeds and the leadscrew - and handy adjustable stops fitted for the automatic disengagement of the longitudinal (sliding) feed. Fitted with a screwcutting gearbox able to provide a limited range of pitches: 3.5, 4, 5, 6, 7, 8, 10, 12, 14, 16, 20 and 24 t.p.i.

A set of changewheels was available to extend this range including a 63t metric translation wheel - a useful precaution on a lathe used for emergency repairs. 12 rates of sliding and surfacing feed were available from 0.005 to 0.040" per rev sliding and from 0.0025" to 0.02" surfacing. Two unusual touches were the provision of a series drain holes in the valley of the rear V in the lathe bed and a cross-slide wiper with an overhanging protector.

Milling Machine:

Very heavily built, the milling-machine element was a proper "universal" - that is, a combined horizontal and vertical type with a three T-slot, 40" x 10" table able to be swung some 50^{o} either side of centre. 23" of longitudinal travel was provided, with 7" in cross traverse and 13" vertically (though it is possible that an alternative specification was alsom produced with slightly greater travels).

With a heavy-duty, 40 International taper the spindle had speeds that ran from 21 though 30, 45, 74, 106, 161, 244, 352 to a maximum of 533 r.p.m. Fittings were provided for a front brace support for the table and knee assembly and, at the right-hand end of the table, a take-off drive to operate a power-driven rotary table - the control for this were, very conveniently, built into the table power-feed arrangement with an attached feed-rate chart. In addition, the makers offered an ordinary dividing head and powered rack-cutting and slotting attachments.

Grinding Machine:

A complete, self-contained cylindrical/universal grinding machine was bolted in place parallel to and behind the lathe bed and carried just a Ryder badge. With a 10" swing over the bed and a maximum capacity between centres of 24", it provided the usual range of facilities including (with accessories) tool and cutter grinding and a limited surface grinding capacity. Although the table's reciprocating motion - 6.5 to 69 inches per minute - was mechanically driven, its gearbox was flexibly mounted to aid smoothness of power delivery. The wheelhead motor was rated at 3 h.p., that for the workhead 1/4 h.p. and for the table traverse 1.5 h.p.

Вариант 9

I. Выполните полный письменный перевод текста.

II. Выполните аннотационный перевод текста.

III. Выполните следующие задания:

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7. Укажите устойчивые выражения. Переведите.

Текст для перевода

Jones - USA

Although one might imagine that sets of casting to build small machine tools, especially lathes, would have been in constant demand during the more austere times of the 1930s, 1940s and 1950s, this never seemed to be the case. The only possible exceptions were Jones and Lewis in the USA (Lewis's main product was a shaper) and the English Dore Westbury Milling machine (which filled a particular niche). Certainly, it is much more difficult than one might imagine to build a successful small lathe and, even though the pages of the English "Model Engineer" magazine have featured home-designed and built machines for many decades, nobody seemed interested in marketing a complete set of castings and other parts for home machining and assembly. Some machines have been offered for home *assembly* (the English Relm and Super Relm in the early part of the century for example - and more recently the Simat 101 and possibly Perris as well) but that is not the same thing at all.

The American David Jones Machine Company kits, described on these pages are, therefore, something of a rarity - however, one cannot help wondering just what proportion of the casting sets for lathes, millers and shapers - bought with such initial enthusiasm - were actually turned into functional machines. The company originally marketing these castings and drawings was the Pootatuck Corporation of Old Stratford Road, Shelton, Connecticut whose advertisements appear to have run from the very early to mid 1950s with their first address given as 100 Sammis Place, in Stratford, Connecticut - a location not shown on present maps. However, the owner of Pootatuck at that time was Donald Sammis and the company was managed by his nephew, John S. Richardson. In 1956, having bought the company from his uncle, Richardson moved it to Shelton. The subsequent connection to the David Jones name is still not clear but will no doubt be revealed in the fullness of time.

Jones offered three lathe kits: the 8-swing screwcutting "Modelmaker", the 7-inch plain-turning "Tyro" and another 7-inch lathe modelled on the lines of a traditional "Precision Bench Lathe". The most useful of the three was the "Modelmaker", with a twenty-eight inch long cantilever-form bed the machine offered 15 inches between centres, a set-over tailstock, compound slide rest - and spindle bearings, split to form a means of adjustment, formed from the cast iron of the headstock itself. Aping the practise of Precision Bench Lathe makers, Jones fitted the headstock cone pulley (which incorporated a ring of indexing holes) the "wrong" way round, enabling a bracing strut to rise from the base of the headstock casting to stiffen its front bearing. Either V or flat-belt drive was offered - the pulleys being 2.25", 3.25" and 4.25" in diameter for the 1" wide flat belt and 3", 4" and 5" in diameter for the V belt system.

Although only one type of spindle bearing is mentioned in the Jones' sales literature, it is possible that a second type of rather more substantial headstock bearing was offered fitted with a detachable cap retained by two bolts.

The spindle nose was identical to that found on a Myford ML7 - 1.125" x 12 tpi - but only No.1 Morse centres were fitted to both the headstock and tailstock.

Вариант 10

I. Выполните полный письменный перевод текста.
II. Выполните аннотационный перевод текста.
III. Выполните следующие задания:
1. Найдите в тексте термины. Определите, сложные они или простые.
2. Найдите в тексте неологизмы. Переведите их.
3. Найдите в тексте интернациональные слова и переведите их.

4. Найдите в тексте псевдоинтернациональные слова (ложные друзья переводчика). Определите группу. к которой они относятся. Переведите.

5. Найдите в тексте безэквивалентные слова. Переведите.

6.Укажите имена собственные, географические названия, если есть. Переведите и укажите способ перевода (транслитерация или транскрипция).

7. Укажите устойчивые выражения. Переведите.

Текст для перевода

The original Chard lathes were propably made in New Castle, Indiana, about thirty miles east of Indianapolis but the company was bought by the Western Machine Tools Works of Holland, Michigan, whose plant survived until 1992 but was not finally cleared until 1999. The machines illustrated on these pages were all available during the late 1930s and early 1940s.

Chard lathes were very well built and incorporated several features designed to improve their rigidity and turning performance. The entire drive system, comprising the speed-change gearbox, clutch and spindle brake were mounted within the headstock cabinet leg and drove up to the headstock through a "silent chain". This principle (used on many toolroom lathes) of positioning the mass of the heavy drive system close to the floor, and away from the main spindle, helped to isolate the inherent vibration of the running gears, reduced stress within the headstock casting and added to the general stability of the machine.

A motor, contained within the base, drove the gearbox by V belts; the input pulley being mounted on ball bearings, on a horn, which extended from the gearbox casing. Built into this drive pulley was a multi-plate disc clutch which could be operated by two levers, both on a common shaft, one mounted by the headstock and the other fastened to the apron and travelling with it.

All the gears were of high-grade alloy steel, with bores concentrically ground to their pitch line. Shafts within the gearbox were ground, mounted on ball bearings, and automatically lubricated by the splash of the rotating gears in their oil sump - which was provided with a combination filler and drain plug.

The base of the cabinet leg also contained an oil sump from where oil was pumped, under pressure, through an adjustable relief valve and filter unit to all bearings in the headstock, from where it was returned after use to repeat the cycle.

A cone brake, synchronised in operation with the clutch-release movement, was provided for instant stopping of the spindle, and was actuated by the same two levers as the clutch. All four speed changes from the gearbox were selected with a single lever, mounted on the headstock's front face. A positive interlock prevented the operator engaging different speeds simultaneously, and each ratio was held in its operating position by detents within the gearbox itself. The final drive to the headstock spindle was by sprocket and silent-chain with an adjustable tensioner provided to take up wear.

All Chard beds were of the Vee and flat type, made from close-grained, semi-steel, chill hardened and of full depth for their entire length - there was no reduction of wall height towards their middle section. Together with cross bracing, at frequent intervals, this produced a bed of exceptional rigidity and strength.

Surprisingly for so large a lathe the headstock spindle had a screw thread - of 23/8" diameter by 6 TPI on the 16" lathe and 23/4" by 5 TPI on all the larger ones - although a taper key-drive (National Standard) LO fitting was offered as a no-cost extra.

The 16" and 18" lathes had 8 spindle speeds of 18, 25, 36, 52, 181, 249, 350 and 508rpm. or, optionally (and not much of an improvement) 55, 76, 107, 156, 181, 249, 350, and 508 rpm. A 12 speed option was also available,

4. Вопросы для промежуточной аттестации

Процедура проведения зачета (дифференцированного зачета)

Для получения отметки «зачтено» студент должен ответить на вопросы билета, который он выбирает из 25 билетов. В билете два вопроса: первый требует письменный перевод текста с английского на русский, при этом текст студенту представляется впервые. Второй вопрос предполагает письменное выполнение нескольких заданий, представленных ниже. Тексты носят научно-технический характер и соотносятся с темами текстов контрольных работ. В 4 семестре тема текстов – «Инженерные науки», в 5 семестре – «Технологические машины и оборудование», в 6 семестре – «Станки и инструменты».

Критерии оценивания.

При проведении зачета отметка «зачтено» выставляется при условии, что при выполнении первого задания билета студент перевел не менее двух третей текста, не допустив ошибок, искажающих смысл переводимого текста. Выполнена половина второго задания.

При проведении зачета с оценкой выставляются следующие отметки:
«отлично» - студент выполнил письменный перевод текста полностью, не допустив ошибок, искажающих смысл переводимого текста, второе задание выполнено полностью.
«хорошо» - студент выполнил письменный перевод текста, допустив не больше 3х речевых и стилистических ошибок, которые не искажают общий смысл оригинального текста. Второе задание выполнено полностью.
«удовлетворительно» - студент перевел не менее двух третей текста, не допустив ошибок, искажающих смысл переводимого текста, выполнил половину второго задания.
«неудовлетворительно» - студент выполнил перевод половины текста, есть искажения смысла оригинала, не выполнил второе задание либо выполнил половину объема.

Вопросы к зачету (4 семестр)

1. Выполните полный письменный перевод текста с помощью словаря.
2. Выпишите из текста:
   а) предложения с инфинитивом. Укажите его функцию, способ перевода.
   б) предложения с причастием. Укажите его тип, способ перевода.

Вопросы к зачету (5 семестр)

1. Выполните полный письменный перевод текста с помощью словаря.
2. Выпишите из текста:
   а) 1 простое предложение
   б) 1 сложное предложение. Укажите его тип.
   в) Выпишите из текста предложения, при переводе которых вы использовали один из следующих приемов: замена простого предложения сложным, замена сложного предложения простым, членение или объединение предложений, изменение типа синтаксической связяи. Укажите рядом с выписанным предложением прием перевода.

Вопросы к дифференцированному зачету (6 семестр)

1. Выполните полный письменный перевод текста с помощью словаря.
2. Выпишите из текста:
    а) термины
    б) неологизмы
    в) псевдоинтернациональные слова
    г) безэквивалентные слова
3. Напишите перевод к каждому из выписанных слов и укажите способ перевода.

Рекомендованная литература

1. Агабекян И.П. Английский язык для бакалавров / И.П. Агабекян. - 2 изд. - Рн/Д: Феникс, 2012 - 379с.(Высшее образ.)

2. Слепович П.С. Перевод: (английский - русский): учебное пособие. Минск: ТетраСистемс, 2009 – 336 с.

Приложение А

Техника выполнения разных видов перевода

Полный письменный перевод текста

Работа над полным письменным переводом предусматривает ряд шагов.

Шаг первый. Внимательное чтение всего текста с использованием, словарей, справочников, специальной литературы. На данном этапе необходимо понять, что выражено на языке оригинала. Для этого следует внимательно, и может быть не один раз, прочитать весь текст. Важно понять общее содержание.

Шаг второй. Деление текста на смысловые части - предложения, группы предложений, абзацы. Величина определяемой для перевода части текста зависит от 3-х факторов: смысловой законченности, сложности содержания, возможностей памяти переводчика. Такой частью текста может быть предложение, группа предложений, абзац, 11/2 абзаца и т.п., но эта часть должна быть обязательно законченной по смыслу. Чем сложнее текст - тем меньше такая часть, чем лучше память переводчика - тем она больше.

Читая текст по предложениям, нужно постараться понять синтаксический строй и смысл каждого предложения. Если синтаксический строй предложения неясен, следует выполнить грамматический анализ: определить вид предложения, найти подлежащее, сказуемое, второстепенные члены. Если предложение сложноподчиненное, найти главное и придаточное предложения, опираясь на формальные признаки. Обращаться к словарю следует в том случае, если были использованы все средства раскрытия значения незнакомых слов, включая догадку и грамматический анализ. При переводе последующего предложения необходимо постоянно удерживать в памяти смысл предыдущего, иначе теряется логическая связь между отдельными предложениями.

Шаг третий. Написание черновика. Работа над каждой выделенной частью текста последовательно. На данном этапе полностью усвоенный и понятый текст записывается по-русски. При этом следует полностью отвлечься от оригинала.

Шаг четвертый. Повторное (неоднократное) чтение оригинала, сравнение его с черновиком. После того, как письменно изложено содержание выделенной части текста, нужно обратиться к оригиналу для сверки. При переводе последующих частей текста необходимо постоянно следить за стилем, т.е. за качеством, единообразием и логикой изложения. Единообразие терминологии должно соблюдаться на протяжении всего текста. Между каждой последующей и предыдущей частью перевода была логическая связь.

Шаг пятый. Окончательное редактирование перевода с внесением поправок. При редактировании руководствуются правилами: а) если одну и ту же мысль можно выразить несколькими способами, то предпочтение отдается более краткому способу; б) если слово иностранного происхождения можно без ущерба заменить словом русского происхождения, то переводчик обязан это сделать; в) все термины и названия должны быть строго однозначны.

Шаг шестой. Перевод заголовка. Так как заголовок должен отражать суть содержания текста, он переводится в последнюю очередь.

Аннотационный перевод текста

Аннотационный перевод - вид технического перевода, заключающийся в составлении аннотации оригинала на другом языке. Аннотация - краткая характеристика оригинала, излагающая его содержание в виде перечня основных вопросов и иногда дающая критическую оценку.

Объем аннотационного перевода обычно составляет не более 500 печатных знаков.

Выполняя аннотационный перевод, Вы сообщаете о том, что изучается, описывается, обсуждается и т.д. При этом, для английского языка наиболее характерны предложения со сказуемым в пассивном залоге и прямой порядок слов, а для русского языка - предложения со сказуемым в страдательном залоге, но с обратным порядком слов.

Например:

The problem of programming is studied. Изучается вопрос программирования.
The main principles are discussed. Изложены основные принципы.
The advantages of the method are outlined. Описаны преимущества данного метода.

Примерная схема аннотационного перевода

1. Постановка проблемы.
2. Методы решения проблемы.
3. Выделение узловых пунктов статьи.
4. Рекомендации.

Основные клише и штампы, используемые при аннотационном переводе:

1. Статья посвящена вопросу...
Речь идет о...
2. Предлагаются методы...
Описываются преимущества методов...
3. Особое внимание уделяется...
Автор подчеркивает важность...
4. Статья представляет интерес для...

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