

**Міністерство освіти і науки України
Красноармійський індустріальний інститут
Державного вищого навчального закладу
“Донецький національний технічний університет”**

**Контрольні завдання
з англійської мови для студентів – заочників
напрямку підготовки «Гірництво»**

Красноармійськ 2012

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Розглянуто

на засіданні кафедри СГП

КП ДонНТУ

протокол № 1 від 05.09.2012

Затверджено

на засіданні ради ІМС

протокол № 15 від 02.10.2012

Красноармійськ 2012

Самофалова Т.В., Скалозуб О.М. Контрольні завдання з англійської мови для студентів-заочників напрямку підготовки «Гірництво». – Красноармійськ: КП ДонНТУ, 2012. – 35 с.

Методична розробка містить загальні положення , перелік навчального матеріалу, передбаченого програмою, контрольні завдання, додаткові тексти для підготовки до іспиту, а також список рекомендованої літератури.

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Загальні положення

Вивчення дисципліни “Англійська мова” студентами напряму підготовки «Гірництво» проводиться у відповідності до типової програми, методичних вказівок і контрольних завдань для студентів-заочників вищих закладів освіти немовних спеціальностей.

Мета навчання англійської мови у технічному вузі – це підготовка студентів до мовленнєвої діяльності іноземною мовою, що передбачає наявність практичних, професійно-орієнтованих навичок, які після закінчення курсу нададуть їм можливість читати оригінальну літературу за спеціальністю для вилучення необхідної інформації; приймати участь в усному спілкуванні англійською мовою в обсязі матеріалу, передбаченого програмою.

Практичні завдання під час вивчення курсу.

Грамматика. Вивчення і закріплення в усному і письмовому мовленні мовних явищ згідно програми.

Лексика. Засвоєння нового лексичного матеріалу відбувається у двох напрямках:

- а) за темами, що пов’язані з майбутньою професією студентів (активне опанування термінологією на базі текстів за фахом);
- б) за розмовними темами.

В умовах заочного навчання такі види мовної діяльності, як усна мова (мовлення й аудіювання) та письмо використовуються протягом усього курсу як засіб навчання. Переклад (усний і письмовий) застосовується: а) як засіб навчання, б) для контролю розуміння прочитаного, в) як можливий засіб передачі отриманої при читанні інформації.

Для того, щоб досягти успіху у вивченні англійської мови, необхідно розпочати роботу над мовою з перших днів навчання і займатися систематично.

Самостійна робота студентів з оволодіння іноземною мовою охоплює вивчення слів англійської мови, розуміння дії правил словотворення, граматичних правил, читання професійно-орієнтованих текстів англійською мовою вголос відповідно правил читання, слухання аудіо-текстів для того, щоб навчитися правильно вимовляти і сприймати на слух зміст повідомлення, розвиток навичок в побудові запитань та відповідей до текстів, переклад українською мовою (усний і письмовий); надалі – читання, переклад, анування газетних текстів, літератури за фахом з метою вдосконалення практичних мовленнєвих навичок і розширення лексичного запасу, розвитку вмінь вилучати необхідні дані з контексту, оперувати англійською мовою інформацією.

Протягом навчання студенти виконують контрольні роботи: 2 (дві) у першому семестрі.

Кожна контрольна робота складається з 5 варіантів. Студент виконує один з п’яти варіантів відповідно до останньої цифри залікової книжки:

студенти, шифр яких закінчується на 1 або 2, виконує варіант №1; на 3 або 4 – №2; на 5 або 6 – №3; на 7 або 8 – №4; на 9 або 0 – № 5.

Види і форми контролю.

Студенти вищевказаного напрямку підготовки складають залік (I семестр) та іспит (II семестр). Іспит передбачає:

- 1) читання і переклад тексту за фахом (науково-технічна література);
- 2) анутовання газетного (науково-популярного) тексту;
- 3) бесіду за темою.

Навчальний матеріал з англійської мови.

1. Структура речення в англійській мові порівняно зі структурою речення в українській мові. Розповідне, питальне та заперечне речення. Типи питань.
2. Дієслово. Допоміжні, питальні та смислові дієслова.
3. Спосіб (дійсний, умовний, наказовий). Система часів.
4. Активний і пасивний стан. Особливості використання і перекладу пасивного стану. Узгодження часів.
5. Безособові форми дієслова. Дієприкметник, функції та способи перекладу. Інфінітив, функції та способи перекладу. Герундій, функції та способи перекладу.
6. Модальні дієслова та їх еквіваленти.
7. Умовний спосіб. Емфатичні конструкції.
8. Функції дієслів: to be, to have, to do, will, should, would. Функції дієслів із закінченням -ing, -ed.
9. Іменник. Утворення множини. Присвійний відмінок.
10. Артикль.
11. Займенник (загальні відомості). Особові, присвійні, вказівні займенники. Неозначені займенники some, any і заперечний займенник no. Кількісні займенники many, much, few. Неозначено-особовий займенник one. Три функції one. Підсилювальні та зворотні займенники.
12. Прикметник. Прислівник. Ступені порівняння.
13. Числівник. Кількісні та порядкові числівники. Дріб. Читання формул, хронологічних дат, позначень часу.
14. Граматичні особливості перекладу (артикль, іменник, прикметник, числівник, займенник, дієслово, прислівник, прийменник, сполучник). Конструкції типу the more, the better, there + be.
15. Синтаксичні особливості перекладу (умовне речення, неозначено-особові та безособові речення, безсполучникові підрядні речення, складнопідрядні речення, інверсія та ін.).
16. Лексичні особливості перекладу (багатозначність, конверсія, синонімія, неологізми, "фальшиві друзі перекладача", британський та американський варіанти англійської мови, терміни, уживані вирази та службові слова, іношомовні запозичення, аббревіатури, умовні позначення, власні назви, англійська система мір та ваги тощо).

17. Жанрові особливості перекладу.

18. Найуживаніші суфікси, префікси англійської мови науково-технічної літератури та їх значення. Основні суфікси іменників, прикметників, дієслів, прислівників.

Контрольне завдання 1

Щоб вірно виконати завдання 1, необхідно засвоїти такі розділи курсу:

1. Іменник. Множина. Артиклі та прийменники як показники іменника. Вираз відмінкових відносин в англійській мові за допомогою прийменників та закінчень - s. Іменник у функції означення та його переклад українською мовою.
2. Прикметник. Ступені порівняння прикметників. Конструкції типу *the more... the less*.
3. Числівники.
4. Займенники – особові, присвійні, питальні, вказівні, неозначені та заперечні.
5. Форма теперішнього (Present), минулого (Past), і майбутнього (Future) часу групи Simple (Indefinite) дійсного стану (Active Voice) дійсного способу. Наказовий спосіб та його заперечна форма.
6. Просте поширене речення: прямий порядок слів розповідного та спонукального речення у стверджувальній та заперечній формах. Зворотній порядок слів (інверсія) питального речення. Зворот *there + be*.
7. Основні випадки словотворення.
8. Дійсний та пасивний стан дієслова (Simple Tenses).

Контрольна робота №1

Варіант №1

1. Прочитайте і перекладіть рідною мовою письмово текст.

Pavel Yablochkov.

Pavel Yablochkov was born in Saratov Province on September 26, 1847. When fourteen years old, the boy was taken by his parents to Petersburg. Having finished school, he entered the Military Engineering College and later the Electrotechnical School for officers. After graduating he gave up the lucrative post of a military engineer and continued to perfect his knowledge in electrical engineering.

At this period of life Yablochkov moved to Moscow and worked as a chief of the telegraph office on the Moscow-Kursk railway. He organized a physical laboratory and workshop of his own. It is there that he spent all his free time studying electrical phenomena. Later he lived for some years in Paris and there he carried on his scientific and experimental work.

The practical application of the electric arc for lighting purposes begins with Yablochkov. Before him it had seemed impossible because the carbon rods between which the arc had to be formed burned out too quickly. The only man who found a solution to this most difficult problem was Yablochkov. He achieved it by placing the two carbon electrodes parallel to each other instead of placing them end to end as other electricians had done before him. On March 23, 1876 Yablochkov received the French patent for his “candle” or “Russian candle” as it was generally called.

While working with his candle Yablochkov was the first to realize the advantages of a transformer. He employed a single-phase a.c. transformer with a broken magnetic system. He was also the first scientist who was fully aware of the advantages of the alternating current system and widely used the a.c. for practical purposes. Before him that kind of current had been employed for laboratory work alone. [3: 92]

2. Поставте запитання до підкреслених у тексті слів.

3. Дайте відповіді на запитання за змістом тексту.

1. What higher educational institution did Yablochkov graduate from?
2. Where did Yablochkov study electrical phenomena when he lived in Moscow?
3. What did he receive the French patent for?
4. Why had the practical application of the electric arc for lighting purposes seemed impossible before Yablochkov?
5. In what way did Yablochkov manage to make his “candle” more durable?

4. Перекладіть речення на англійську мову.

1. Після закінчення школи електротехніки Яблочков продовжував удосконалювати свої знання і проводити весь свій вільний час, вивчаючи електричні явища.
2. Яблочков провів безліч експериментів і застосував електричну дугу для освітлення.
3. В електричній „свічці” Яблочкова два вуглецевих електроди було розташовано паралельно.
4. Яблочков першим зрозумів переваги трансформатора.

5. Перепишіть речення. Визначте за граматичними ознаками, якою частиною мови є слова з закінченням “-s” і яку функцію це закінчення виконує :

- 1) є показником 3-ої особи однини в Present Indefinite;
- 2) показником множини іменника;
- 3) показником присвійного відмінка іменника;

1. A well-known scientist works at this plant.
2. Our students will have practical training in mines.
3. Last month my friend read a very interesting book on London’s history.

6. Перепишіть наступні речення. Визначте видо-часову форму дієслова, назвіть його інфінітив. Речення перекладіть.

1. The scientist took a particular interest in mine safety.
2. The underground railway is called metro.
3. They will want to work on the problem of coal gasification.

7. Перепишіть та перекладіть речення, звертаючи увагу на переклад неозначених і заперечених займенників. Підкресліть ці займенники.

1. Nobody likes being poor.
2. Everybody must be at the conference.
3. Is there anybody in the lab? Yes, there is. There is somebody there.

8. Перекладіть речення, що містять різні порівняльні форми.

1. Open-cast mining is by far most efficient.
2. My friend is one of the best students of our group.
3. The more I studied the English language, the more I liked it.

9. Перекладіть текст, використовуючи за змістом дієслова to be, to have.

People ... used calculating devices since ancient times. The first electronic digital computer... built in 1946. The large room ... filled with the computer. Since then rapid improvement in computer technology ... led to the development of smaller, more powerful, and less expensive computers. But computers ... not able to think. A user ... to tell the computer in very simple terms exactly what to do with the data it receives. A list of instructions for a computer to follow ... called a program.

Контрольна робота №1

Варіант №2

1. Прочитайте і перекладіть рідною мовою письмово текст.

A.M. Terpigorev (1873-1959)

Academician A.M. Terpigorev is a well-known mining engineer who successfully combined his practical experience with scientific research. He was born in 1873 in Tambov. In 1892 he finished school with honours and decided to get a higher education. He chose the Mining Institute in St. Petersburg, passed all the entrance examinations successfully and became a student of the Mining Institute.

At the Institute he studied the full range of subjects relating metallurgy, mining and

mining mechanics.

At that time students' specialization was based on descriptive courses and elementary

practical training. One of the best lecturers was A.P. Karpinsky. His lectures on historical geology were very popular.

During his practical training Terpigorev visited mines and saw that the miners work was

very difficult. While he was working in the Donbas he collected material for his graduation paper which he soon defended. The Mining of flat seams in the Donbas was

carefully studied and described in it.

In 1897 Terpigorev graduated from the Institute with a first-class diploma of a mining engineer.

His first job as a mining engineer was at the Sulin mines where he worked for more than

three years first as Assistant Manager and later as Manager.

From 1900 till 1922 Terpigorev worked at the Yekaterinoslav Mining Institute (now the Mining Institute in Dnepropetrovsk).

In 1922 he accepted an offer to take charge of the mining chair at the Moscow Mining

Academy and moved to Moscow. From 1930 he headed the chairs of Mining Transport

and Mining of Bedded Deposits at the Moscow Mining Institute.

Academician Terpigorev took a particular interest in mine safety. As a result of his investigations a series of safety measures in gassy collieries was worked out. For some

time he was working on the problem of fire damp, the most harmful and dangerous of all the gases in mines.

His two-volume work *Coal Mining and Mine Transport Facilities* is a full description of

the state of mechanization and the economy of the Donbas. His other works are about

mining transport facilities, mechanization of coal mining and mining machinery. He is one

of the pioneers in scientific methods of coal gasification.

2. Поставте запитання до підкреслених у тексті слів.

3. Дайте відповіді на запитання за змістом тексту.

1. When and where was Terpigorev born?
2. What material did he collect while he was working in the Donbas?
3. What did Terpigorev take a particular interest in?
4. What problems do Terpigorev's works deal with?
5. What was the result of his investigations on mine safety?

4. Перекладіть речення на англійську мову.

1. Після закінчення школи Терпігорев вирішив отримати вищу освіту.
2. Терпігорев зібрав матеріал для своєї дипломної роботи про розробку пластових родовищ у Донбасі.
3. Терпігорев був першим, хто розробив проблему газифікації вугілля.

5. Перепишіть речення. Визначте, за граматичними ознаками, якою частиною мови є слова с закінченням “-s” і яку функцію це закінчення виконує :

1) є показником 3-ої особи однини в Present Indefinite;

2) показником множини іменника;

3) показником присвійного відмінка іменника;

1. Most of London's places of interest are situated to the north of the Thames.
2. As there was no mining machinery the miners' work was very hard.
3. He speaks about coal beds and the functions of mine ventilation.

6. Перепишіть наступні речення. Визначте видо-часові форми дієслова, назвіть його інфінітив. Речення перекладіть.

1. When he went down the mine, Terpigorev saw that there were no combines, conveyers and other equipment such as used now.
2. Students are often asked questions at the lessons.
3. The scientists will work out the new methods of useful minerals.

7. Перепишіть та перекладіть речення, звертаючи увагу на переклад неозначених і заперечених займенників. Підкресліть ці займенники.

1. There is some interesting information about open-cast mining.
2. Any student of our group can speak on the underground exploration of coal.
3. Nobody knew anything about this experiment.

8. Перекладіть речення, що містять різні порівняльні форми.

1. There are deeper and wider cracks.
2. Wood is the cheapest material used for mine support.
3. Your translation is better than mine.

9. Перекладіть текст використовуючи за змістом дієслова to be, to do.

“...you know Terpigorev’s work which deal with mine safety?”

“Yes? I... .”

“...you know who...working on this important problem at your Institute now?”

“Yes, I Prof. N. and his pupils ... conducting research in this field of mining. They... working out a series of safety measures in gassy collieries.”

“...you at his lecture yesterday?”

“Yes, I... .”

“...Prof. N. speaking about the results of his investigations?”

“No, he ... not. He ... speaking about coal beds and the functions of mine ventilation.”

“...you going to attend his next lecture?”

“Yes, I... .”

Контрольна робота №1

Варіант №3

1. Прочитайте і перекладіть рідною мовою письмово текст.

A.P. Karpinsky (1847-1936)

V.A. Obruchev, I.M. Gubkin, A.Y. Fersman, V.I. Vernadsky and A. P. Karpinsky were the prominent Russian scientists who laid the foundation of the Russian school of geology and mining.

An entire epoch in the history of Russian geology is connected with Karpinsky's name. One of the greatest Russian geologists, he was a member and for some time President of the Academy of Sciences of the former USSR and a member of several Academies abroad. The Geological Society of London elected him a foreign member in 1901. His greatest contribution to geology was a new detailed geological map of the European part of Russia and the Urals.

For many years he headed the Russian Geological Committee the staff of which was made up of his pupils. He was one of those geologists who embraced the whole of geological science. He created the new stratigraphy of Russia. He studied the geological systems in various regions of the country and was the first to establish the regularity of the Earth's crust movement. His paleontological studies are of no less importance, especially those on palaeozoic ammonoids. He also took an interest in deposits of useful minerals and gave a classification of volcanic rocks. He advanced the view that petroleum deposits existed in Russian, which was confirmed later. He studied some ore and platinum deposits and may be justly considered the founder of

practical geology of the Urals. He was the first Russian scientist who introduced microscope in the study of petrographic slides.

Karpinsky was a prominent scientist, an excellent man and citizen. He was one of the best lecturers at the Mining Institute in his time. He was also one of the greatest Russian scientists who later became the first elected President of the Academy of Sciences of the USSR. Students were attracted to him not only because he was a great scientist but also because of his charming personality and gentle manner.

Every geologist and every geology student knows very well Karpinsky's most significant work *An Outline of the Physical and Geographical Conditions in European Russia in Past Geological Periods*.

2.Поставте запитання до підкреслених у тексті слів.

3. Дайте відповіді на запитання за змістом тексту.

1. What society elected Karpinsky a foreign member and when?
2. Did he head the Russian Geological Committee or was he a member of that Committee?
3. Did Karpinsky investigate various regions of the Russian territory?
4. Which of his works are the most remarkable?
5. What can you say about Karpinsky's investigations in petrology?

4. Перекладіть речення на англійську мову.

1. Карпінський - видатний російський вчений, один із засновників російської школи з геології та гірничої справи.
2. Карпінський був членом багатьох академій наук за кордоном.
3. Карпінський був засновником практичної геології Уралу.

5. Перепишіть речення. Визначте за граматичними ознаками, якою частиною мови є слова с закінченням “-s” і яку функцію це закінчення виконує :

1) є показником 3-ої особи однини в present Indefinite;

2) показником множини іменника;

3) показником присвійного відмінка іменника;

1. Every geologist knows very well Karpinsky’s works about mining.
2. The student plans to carry out experiments.
3. They are working out a series of safety measures.

6. Перепишіть речення. Визначте видо-часові форми дієслова, назвіть його інфінітив. Речення перекладіть.

1. This scientist made a great contribution to mining and metallurgy.

2. He will be a mining engineer after graduating from the institute.
3. Much attention is paid to economic geology and mineral economics for evaluation of mineral deposits.

7. Перепишіть та перекладіть речення, звертаючи увагу на переклад неозначених і заперечених займенників. Підкресліть ці займенники.

1. Igneous rocks, more than any other kind of rocks show that the Earth is still changing.
2. There are some educational institutions in this town.
3. Nobody tells me anything.

8. Перекладіть речення, що містять різні порівняльні форми.

1. This shaft is as long as that one.
2. The most common shapes of shafts are circular, square, rectangular, elliptical.
3. My sister speaks English better than my brother.

9. Перекладіть текст, використовуючи за змістом дієслова to be, to have.

People ... used calculating devices since ancient times. The first electronic digital computer... built in 1946. The large room ... filled with the computer. Since then rapid improvement in computer technology ... led to the development of smaller, more powerful, and less expensive computers. But computers ... not able to think. A user ... to tell the computer in very simple terms exactly what to do with the data it receives. A list of instructions for a computer to follow ... called a program.

Контрольна робота №1
Варіант №4

1. Прочитайте і перекладіть рідною мовою письмово текст.

D.I. MENDELEYEV (1834-1907)

A Russian name appeared in 1964 on the honorary board of science at Bridgeport University, USA: Mendeleev was added to the list of the greatest geniuses — Euclid, Archimedes, Copernicus, Galileo, Newton and Lavoisier. D.I. Mendeleev, the explorer of nature, is the greatest chemist of the world. The Mendeleev system has served for almost 100 years as a key to discovering new elements and it has retained its key capacity until now.

D.I. Mendeleev was the fourteenth, and last child of the Director of the Gymnasium at Tobolsk. At 16 he was taken by his mother to St. Petersburg to seek higher education. He entered the Pedagogical Institute where his father has also studied. In 1856 he took a degree in chemistry and in 1859 he was sent abroad for two years for further training. He returned to St. Petersburg in 1861 as Professor of Chemistry.

In 1868 Mendeleyev began to write a great textbook of chemistry known in its English translation as the "Principles of Chemistry". In compiling this, he tried to find some system of classifying the elements—some sixty in all then known — whose properties he was describing. This led him to formulate the Periodic Law, which earned him lasting international fame. He presented it verbally to the Russian Chemical Society in October 1868 and published it in February 1869.

In this paper he set out clearly his discovery that if the elements are arranged in order of their atomic weights, chemically related elements appear at regular intervals. The greatness of Mendeleyev's achievement lies in the fact that he had discovered a generalization that not only unified an enormous amount of existing information but pointed the way to further progress.

2. Поставте запитання до підкреслених у тексті слів.

3. Дайте відповіді на запитання за змістом тексту.

1. How has the Mendeleyev system served for almost 100 years?
2. Where did Mendeleyev study?
3. When did Mendeleyev begin to write his textbook "Principles of chemistry"?
4. Where did Mendeleyev present his Periodic Law?
5. What can you write about the greatness of Mendeleyev's discovery?

4. Перекладіть речення на англійську мову.

1. Менделєєв закінчив Педагогічний інститут, де навчався також його батько.
2. Менделєєв відкрив багато нових хімічних елементів.
3. Менделєєв створив систему класифікації хімічних елементів.

5. Перепишіть речення. Визначте за граматичними ознаками, якою частиною мови є слова с закінченням "-s" і яку функцію це закінчення виконує :

1) є показником 3-ої особи однини в present Indefinite;

2) показником множини іменника;

3) показником присвійного відмінка іменника;

1. Last month my friend read a very interesting book on London's history.
2. The mining engineering students study the basic sciences, principles and technologies of mineral exploration.
3. A group of postgraduates takes an interest in mine safety.

6. Перепишіть наступні речення. Визначте видо-часові форми дієслова, назвіть його інфінітив. Речення перекладіть.

1. A. Karpinsky described the geological past of the European part of the country.
2. The underground railway is called metro.

3. They will want to work on the problem of coal gasification.

7. Перепишіть та перекладіть речення, звертаючи увагу на переклад неозначених і заперечених займенників. Підкресліть ці займенники.

1. This scientist made a great contribution to mining and metallurgy.
2. He will be a mining engineer after graduating from the Institute.
3. Much attention is paid to economic geology and mineral economics for evaluation of mineral deposits.

8. Перекладіть речення, що містять різні порівняльні форми.

1. The longer is the night, the shorter is the day.
2. This mine is the biggest in Donbas.
3. The more experiments we carry out, the more data we obtain.

9. Перекладіть текст, використовуючи за змістом дієслова to be, to have.

All digital computers (have, has) two basic parts: a memory and a processor. The memory (is, are) receiving data and holding them until they (is, are) needed. The memory (is, was) made up of a big collection of switches. The processor (is, was) changing data into useful information by converting numbers into other numbers. It reads numbers from the memory, performs basic arithmetic calculations, and puts the answer back into the memory. The processor (is, are) performing this activity over and over again until the desired result (is, was) achieved. Both the memory and the processor (is, are) electronic.

Контрольна робота №1 Варіант №5

1. Прочитайте і перекладіть письмово рідною мовою текст.

M.V. LOMONOSOV

M. V. Lomonosov was the first Russian geologist who studied geological problems from the scientific point of view. His valuable works had a decisive influence upon the development of the Russian school of geology and mining.

The work "Fundamentals of Metallurgy" played an important part in the development of the coal industry in the Dobass. His work "On the Strata of the Earth" is of great importance for the science of geology even nowadays.

M. V. Lomonosov was the first scientist to point out the necessity of studying the fossil remains of animals.

In those early days of mining he suggested a theory according to which all the rocks and minerals undergo constant changes. This theory about gradual evolution of rocks and unending physical and chemical changes in the earth's crust afforded a foundation of a new science of geochemistry which was further developed by V. I. Vernadsky and A. E. Fersman.

According to M. V. Lomonosov's theory the formation of mountains was the result of upward and downward movements of the land at various points. He described all the alterations of the crust of our earth and the formation of mountains, seas and sedimentary rocks.

The theory and practice of mining and smelting were systematized by the great Russian scientist M. Lomonosov in his book "First Principles of the Science of Mining" (1742) and other publications. M. Lomonosov considered the science of mining to be of vital importance to the national economy. His books and papers dealing with geology and mining had a great influence on the development of the Russian school of scientists.

2. Поставте запитання до підкреслених у тексті слів.

3. Дайте відповіді на запитання за змістом тексту.

1. Who was Lomonosov?
2. What works of Lomonosov do you know?
3. What did Lomonosov write about mining?
4. What theory was systematized by Lomonosov?
5. What can you write about the influence on the development of the Russian science?

4. Перекладіть речення на англійську мову.

1. М. Ломоносов підкреслював необхідність вивчення геології як науки.
2. М. Ломоносов вважав, що наука про гірничу справу має велике значення для розвитку національної економіки.
3. Наукові праці Ломоносова пов'язані з геологією і гірничою справою вплинули на розвиток російської школи вчених.

5. Перепишіть речення. Визначте за граматичними ознаками, якою частиною мови є слова с закінченням "-s" і яку функцію це закінчення виконує :

- 1) є показником 3-ої особи однини в present Indefinite;
- 2) показником множини іменника;
- 3) показником присвійного відмінка іменника;
 1. Our institute keeps in close touch with industrial enterprises.
 2. The scientists state that this region is rich in oil.
 3. Students' specialization is based on elementary practical training.

6. Перепишіть наступні речення. Визначте видо-часові форми дієслова, назвіть його інфінітив. Речення перекладіть.

1. His graduation paper dealt with mining of flat seams in the Donbas.
2. A new mining method is developed at this mine.
3. After graduating from the Institute he will work at this mine.

7. Перепишіть та перекладіть речення, звертаючи увагу на переклад неозначених і заперечених займенників. Підкресліть ці займенники.

1. The rock near the Earth's centre is somewhere between 10 and 15 times as dense as water.
2. Have you any books on chemistry?
3. Is there anybody in the lab?

8. Перекладіть речення, що містять різні порівняльні форми.

1. The more I thought of that plan, the less I liked it.
2. What is the smallest size of a rectangular shaft?
3. Automatic devices make labour safer and easier.

9. Перекладіть текст, використовуючи за змістом дієслова *to be, to have*.

My name (is, was, am) Victor Sedov. I (is, am, was) seventeen years old. I (is, was, am) a first-year student of the mining college. Our college (is, are, was) in the centre of the town.

I (have, has, had) a lot of friends at the college. After the course of studies we (shall, will, are) going to become mining engineers.

My grandfather (were, was, will be) a mining engineer too. He (was, had, is, have) a student of the Moscow Mining Academy many years ago. It (had, was, were) one of the best-know educational institutions in the Soviet Union. It (has, had, is) well-equipped laboratories and a library with many volumes of Russian and foreign books and journals on geology and mining.

Контрольне завдання 2

Щоб вірно виконати Завдання 2, необхідно засвоїти розділи курсу англійської мови з обраного підручника:

1. Видо-часові форми дієслова: а) дійсний стан форми Indefinite (Present, Past, Future); форми Perfect (Present, Past, Future); форми Continuous (Present, Past, Future); б) пасивний стан – форми Indefinite (Present, Past, Future); Особливості перекладу пасивних конструкцій.
2. Модальні дієслова: а) що виражають можливість: can (could), may і еквівалент дієслова can – to be able to; б) що виражають повинність: must, його еквіваленти to have to, to be to, should.
3. Прості не особові форми дієслова: Participle I (Present Participle), Participle II (Past Participle) у функціях означення та обставини. Gerund – герундій: прості форми.
4. Означальні та додаткові підрядні речення (сполучникові); підрядні обставинні речення часу й умови.
5. Інтернаціональні слова.

Контрольна робота №2

Варіант 1

1. Прочитайте і перекладіть письмово рідною мовою текст.

Mining Higher Education in Ukraine

In Ukraine great attention is paid to engineering education. Much depends on today's students. Today a student is to get a much greater amount of new information and this amount is growing all the time. Future specialists must acquire professional knowledge and skills and get modern methods of scientific research, advanced production technology, its organization and management.

Higher mining schools (universities, academies, institutes and colleges) develop a wide range of courses in mining technology, machinery and transport, electrical engineering, industrial electronics, automation, surveying, geodesy, information technology, etc.

The main trend in the development of higher mining education is the introductions of courses in environmental protection, management of mining enterprises, marketing studies and others.

Computer science is also of great importance. The course aims at providing students with understanding how software and hardware technology helps solving problems.

Laboratory work is also an important part in training specialists. Experiments in laboratories and workshops will help students to develop their practical skills. They have a short period of field work to gain working experience,

The students go through practical training at mines. They become familiar with all stages of production and every job from worker to engineer. Here they get practical knowledge and experience necessary for their diploma (graduation) papers.

2. Поставте запитання до підкреслених у тексті слів.

3. Дайте відповіді на запитання за змістом тексту.

1. What spheres must future specialists acquire knowledge in?
2. What courses do higher mining schools offer?
3. Why is computer science of great importance today?
4. What will laboratory work help students in?
5. Where do students go through practical training?
6. What is practical training of students aimed at?

4. Перепишіть речення; підкресліть у кожному з них дієслово-присудок і визначте його вищо-часову форму і стан. Перекладіть речення. У розділі б) зверніть увагу на переклад пасивних конструкцій.

- a) 1. Today scientists are still looking for substance as a source of energy.
2. The Mendeleev system has served for almost 100 years as a key to discovering new elements.
- b) 1. Synthetic rubber products were developed between 1914 and the 1930s.
2. The intensity of process is influenced by many factors.

5. Розкрийте дужки, поставте дієслово в Passive Voice. Речення перекладіть.

1. The printing press (invent)...in the fifteenth century.
2. Italy and France (visit)...by millions of tourists every year.
3. Soon he (send)...to a sanatorium.
4. Today rugby football (play)...in many countries.
5. This type of TV sets (produce)...in Japan.

6. Виберіть необхідне за змістом речення модальне дієслово (can, could, be, able to, needn't, may, must, mustn't). Речення перекладіть.

1. Cactus plants...much water.
2. Cactus plants... grow in the dry desert.
3. Mozart... play the piano when he was three.
4. You will... go there tomorrow.

5. You...smoke in the classroom.
6. ... I borrow your dictionary?
7. You...have a visa to enter some countries.

7. Виберіть правильну форму дієслова. Зверніть увагу на вживання дієслів в Perfect та Continuous.

1. My friends are Scottish. They (come / are coming) from Glasgow.
2. She (listens / is listening) to a French song now but she doesn't understand it.
3. Why didn't you visit me while you (stayed / were staying) in Kiev?
4. I couldn't get in because I (have forgotten / had forgotten) my keys.
5. I (met / have met) him for the first time two years ago.
6. I (have lost / have been losing) my passport.

8. Заповніть пропуски в реченнях, виберіть відповідний прийменник (of, for, in, at, to, during, with, from, on):

One ... the professors ... our Institute is known ... his work ... the field ... geology. He finished school ... St. Peterburg and entered...the Institute of Mining there. ... the Institute he studied the full range ... subjects relating ... geology and mining. ... his practical training he visited many coal-fields and collected material ... his graduation paper ... the stratigraphy of the Urals. After graduating ... the Institute he worked as a geologist in the Kuzbas. He investigated geological conditions and their influence ... the choice ... methods ... mining useful minerals.

Контрольна робота №2
Варіант 2

1. Прочитайте і перекладіть письмово рідною мовою текст.

Mining and Geological Higher Education in Russia

In Russia young people get mining education at special institutes which train geologists and mining engineers for coal and ore mining. The total number of students of an institute includes full-time students, part-time students and postgraduate students.

Russian higher educational establishments offer different specializations for the students. Thus, at the geological institutes, the students specialize in geology, the science which deals with different problems connected with the Earth, its history, the study of rocks, their physical and chemical properties. One of the main tasks of geology is to prospect, discover and study the deposits of useful minerals.

Higher mining schools (universities, academies, institutes and colleges) develop a wide range of courses and programmers that meet the requirements of the society.

They offer courses in mining technology, machinery and transport, hydraulic engineering, electrical engineering, industrial electronics, automation, surveying, geodesy, information technology, etc.

The main trend in the development of higher mining education is the introduction of courses in environmental protection, management (environmental human resources), economics and management of mining enterprises, marketing studies, computer-aided design and others.

Computer science is also of great importance. The course aims at providing students with understanding how software and hardware technology helps solving problems.

Laboratory work is an important part in training specialists. Experiments in laboratories and workshops will help students to develop their practical skills. They have a short period of field work to gain working experience.

The students go through practical training at mines, plants and other industrial enterprises. They become familiar with all stages of production and every job from worker to engineer. Here they get practical knowledge and experience necessary for their diploma (graduation) papers.

Students graduate from mining and geological higher schools as mining engineers, mining mechanical engineers, ecologists, mining electrical engineers, geologists, economists and managers for mining industry.

2. Поставте запитання до підкреслених у тексті слів.

3. Дайте відповіді на запитання за змістом тексту.

1. Where can one get mining education in Russia?
2. What specializations does the Mining Institute offer?
3. Where do the students go through practical training?
4. What does the computer course aim at?
5. What subjects do the students study?

4. Перепишіть речення; підкресліть у кожному з них дієслово-присудок і визначте його вищо-часову форму і стан. Перекладіть речення. У розділі б) зверніть увагу на переклад пасивних конструкцій.

- А) 1. A body moving with a certain velocity carries within itself the kinetic energy of motion.
2. The students are studying the geological past of our district.
- Б) 1. Minerals were divided into the rock – forming minerals and the ores.
2. All essential minerals were classified into groups by geologists.

5. Розкрийте дужки, поставте дієслово в Passive Voice. Речення перекладіть.

1. Far more money (spend)... on food now than ten years ago.
2. Last night we (invite)...to the restaurant by our friends from Spain.
3. The book (discuss)... at the next conference.
4. The article (publish)... last week, if I'm not mistaken.
5. Much research (do)... to prevent our rivers and lakes from being polluted.

6. Виберіть необхідне за змістом речення модальне дієслово (can, could, be, able to, needn't, may, must, mustn't). Речення перекладіть.

1. One object ... be larger than another one, but it may weigh less.
2. Mass ... also be defined as measure of inertia.
3. Man-made satellites ... use solar cells as a source of power.
4. Energy ... exist in many forms and each form ... be transformed into the other.
5. The computers ... become an integral part of organization of industrial processes of all types.
6. The chemists ... use the reactor to analyze various substances for their exact composition.

7. Виберіть правильну форму дієслова. Зверніть увагу на вживання дієслів в Perfect та Continuous.

1. I am sorry, (I am not knowing / don't know) the answer.
2. The woman told me that she (worked / had worked) in China a year before.
3. I (see / am seeing) the problem but I can't help you.
4. We met while we (lived / were living) in Italy.
5. What time does the lesson start? It (has already started / already started.)
6. I (have waited / have been waiting) for years! Where have you been?

8. Розкрийте дужки та поставте дієслово в необхідному часі за змістом тексту. Перекладіть текст.

Our life today (depend) very much on energy. In towns and in villages, on farms and in factories, machines (make) life easier than it used to be. The machines (use) energy, factories and industrial plants (too use) it to make the things that we (buy). But the world's supplies of energy (become) less. Countries with a lot of industry — like the United States of America, Japan and Western Europe (depend) on energy more and more. The United States (have) 6 per cent of the world's people, but each year (it) (use) more than 30 per cent of the energy that the world (produce). The three areas together (have) 19 per cent of the people of the world but (use) nearly 60 per cent of the world's energy. Now suddenly, we (find) that there is not enough energy. We (search) for sources of energy all over the world but we (not to find) it fast

enough. But if we (discover) an endless source of energy, we (be able) to use it? The answer (be) that we must be careful. When we (use) energy of any kind, we (produce) heat: we (make) the Earth a little warmer. We can change the climate. It (be) clear that we (to have to stop) the increase in the use of energy.

Контрольна робота №2
Варіант 3

1. Прочитайте і перекладіть письмово рідною мовою текст

Mining Education in USA

In the USA the basic aim of technical higher education is the training of qualified specialists in a selected field of technology.

In the field of technical education they have a three-part programme:

1) The University programme for engineers and scientists. 2) The technical institute programme for engineering technicians. 3) The vocational trade programme.

The students can get mining education at special colleges and at mining departments of universities. For example, one of the oldest mining schools in the USA is the Colorado School of Mines. Early mining operations in the Territory of Colorado emphasized the need for a college to train mining engineers.

The Colorado School of Mines is situated in the mineral-producing area of the Rocky Mountains. The area is rich in non-ferrous metals such as molybdenum, vanadium, zinc and other deposits. Besides, Colorado has processing (dressing) plants, petroleum refineries and steel plants. Many coal mines are in operation throughout the area.

The field of study includes earth sciences (geology, geochemistry, geophysics and others) and engineering. The students may specialize in petrology, mineral deposits, mining engineering and other disciplines.

Field work is an important part of training. All students take part in a summer field course during their undergraduate programme. Geology laboratories are available within the Department of Geology for study and research.

The mining engineering students study the basic sciences, principles and technologies of mineral exploration, underground and surface operations, rock mechanics, mine ventilation, surveying, mine safety and operating research. The Department operates the experimental mine. It is a large and well-equipped laboratory for teaching and research in mining operations.

The education is fee-paying. The School collects fees at the beginning of each semester. Semester fees include fees for health service, athletics, student centre and others. A student will not be allowed to take final examinations or be graduated if he (or she) has debts to the college.

During their course of training the students may visit surface and underground mines, oil fields, dressing plants and regions of geological interest.

2. Поставте запитання до підкреслених у тексті слів.

3. Дайте відповіді на запитання за змістом тексту.

1. Where can the students get mining education?
2. What is the aim of technical higher education in USA?
3. What subjects do the students study?
4. What does semester fees include?
5. Where have the student practical training?

4. Перепишіть речення; підкресліть у кожному з них дієслово-присудок і визначте його видо-часову форму і стан. Перекладіть речення. У розділі б) зверніть увагу на переклад пасивних конструкцій.

- A) 1. Coal is the main source of power.
2. The history of coal mining in England goes back to period 800 years ago.
B) 1. There are many types of theodolites. The theodolite is used for surveys.
2. Large quantities of coal have been formed in nature by the slow decomposition.

5. Розкрийте дужки, поставте дієслово в Passive Voice. Речення перекладіть.

1. Coal (mine) in mines.
2. In this school children (teach) English and German.
3. This vase (make) of glass.
4. Rice (not to grow) everywhere in China, only in places where it is hot and wet.
5. We (show) the best collection yesterday.

6. Виберіть необхідне за змістом речення модальне дієслово (can, could, be, able to, needn't, may, must, mustn't). Речення перекладіть.

1. Laser light ... be used to transmit power of various types.
2. The application of digital computers ... include all forms of automatic control in science and industry.
3. Ethylene ... be obtained by cracking petroleum.
4. Het ... be divided into three different types.
5. A great number of plastics ... find their applications in the electrical industry.
6. Chemical means ... to be used for the separation of compounds into their elements.

7. Виберіть правильну форму дієслова. Зверніть увагу на вживання дієслів в Perfect та Continuous.

1. All pupils (give, are given) textbooks at school.
2. I (water, am, watered) the flowers every day.
3. Thus magazine (publishes, is published) in Kiev.
4. That famous film (spoke, was spoken) about everywhere.
5. Computers (sell, are sold) in this shop.

8. Заповніть пропуски в реченнях, виберіть відповідний прийменник (of, for, in, at, to, during, with, from, on):

One ... the professors ... our Institute is known ... his work ... the field ... geology. He finished school... St. Peterburg and entered...the Institute of mining there...the Institute he studied the full range... subjects relating...geology and mining. ... his practical training he visited many coal-fields and collected material... his graduation paper... the stratigraphy of the Urals. After graduating... the Institute he worked as a geologist in the Kuzbas. He investigated geological conditions and their influence...the choice...methods...mining useful minerals.

Контрольна робота №2

Варіант 4

1.Прочитайте і перекладіть письмово рідною мовою текст.

The First Mining School in Russia

The Moscow Mining Academy was established in 1918. The main task of the Academy was to train mining engineers and technicians, to popularize technological achievements among miners, to work on important problems of mining and metallurgical engineering and to direct scientific research.

There were three departments in the Academy: mining, geological prospecting and metallurgy. The Moscow Mining Academy introduced a new course in coal mining mechanization which provided the basis for the development of mining engineering. The two scientists A.M. Terpigorev and M.M. Protodvakov wrote the first textbook on machinery for mining bedded deposits. Much credit for the establishment of the Moscow Mining Academy and the development of cooperation among outstanding scientists and educators is due to Academician I.M. Gubkin, a prominent geologist and oil expert.

In 1925 the Moscow Mining Academy was one of the best- known educational institutions in Russia. It had well-equipped laboratories, demonstration rooms and a library which had many volumes of Russian and foreign scientific books and journals.

The Academy established close contacts with the coal and ore mining industries. The scientists carried out scientific research and worked on important mining problems. The rapid growth of the mining industry called for the training of more highly-qualified specialists and the establishment of new educational institutions.

New collieries and open-cast mines, concentration plants, metallurgical works and metal-working factories for processing non-ferrous and ferrous metals appeared in the country. The people took an active part in the construction of new industrial enterprises.

The Academy alone could not cope with the problem of training specialists. In 1930 the Moscow Mining Academy was transformed into six independent institutes. Among the new colleges which grew out of the Academy's departments were the Moscow Mining Institute and the Moscow Institute of Geological Prospecting; later, the scientific research Institute of Mining appeared near Moscow.

2.Поставте запитання до підкреслених у тексті слів.

3. Дайте відповіді на запитання за змістом тексту.

1. What was the main task of the Academy?
2. What new course did the Academy introduce?
3. Were there three or four departments at the Academy?
4. What industries did the Academy establish contacts with?
5. Why was the Academy transformed?

4. Перепишіть речення; підкресліть у кожному з них дієслово-присудок і визначте його видо-часову форму і стан. Перекладіть речення. У розділі Б) зверніть увагу на переклад пасивних конструкцій.

- A) 1. Yablochkov designed and put into practice the a.c. transformer.
2. Maria and Pierre Curie discovered two radioactive elements, radium and polonium.
- Б) 1. Progress is made every day in the world of science.
2. The theory of relativity was formulated by Einstein.

5. Розкрийте дужки, поставте дієслово в Passive Voice. Речення перекладіть.

1. Toyota cars (produce) in Japan.
2. Those high buildings (see) from the distance.
3. The devil is not so black as it (paint).
4. A man (know) by the company he keeps.
5. A name sooner (lose) than (win).

6. Виберіть необхідне за змістом речення модальне дієслово (can, could, be, able to, needn't, may, must, mustn't). Речення перекладіть.

1. In order to get married you ... be sixteen.
2. Jane ... still be in office, but she usually leaves before six.
3. You ... make a noise in a library.
4. Horses ... sleep standing.
5. You ... wait for me.
6. Einstein ... speak eight languages.
7. In a month you will ... speak another language.

7. Виберіть правильну форму дієслова. Зверніть увагу на вживання дієслів в Perfect та Continuous.

1. America (discovered, was discovered) by Columbus.
2. The floor (painted, was painted) last summer.
3. Those houses (built, were built) five years ago.
4. They (wrote, were written) the dictations yesterday.
5. An interesting job (offered, was offered) to her.

8. Розкрийте дужки та поставте дієслово в необхідному часі за змістом тексту. Перекладіть текст.

Our life today (depend) very much on energy. In towns and in villages, on farms and in factories, machines (make) life easier than it used to be. The machines (use) energy, factories and industrial plants (too use) it to make the things that we (buy). But the world's supplies of energy (become) less. Countries with a lot of industry — like the United States of America, Japan and Western Europe (depend) on energy more and more. The United States (have) 6 per cent of the world's people, but each year (it) (use) more than 30 per cent of the energy that the world (produce). The three areas together (have) 19 per cent of the people of the world but (use) nearly 60 per cent of the world's energy. Now suddenly, we (find) that there is not enough energy. We (search) for sources of energy all over the world but we (not to find) it fast enough. But if we (discover) an endless source of energy, we (be able) to use it? The answer (be) that we must be careful. When we (use) energy of any kind, we (produce) heat: we (make) the Earth a little warmer. We can change the climate. It (be) clear that we (to have to stop) the increase in the use of energy.

Контрольна робота №2

Варіант 5

1. Прочитайте і перекладіть письмово рідною мовою текст.

Mining Education in Great Britain.

In Great Britain the students get mining education at special colleges and at mining departments of universities.

The aim of training at the University is give the student an understanding of applied science based on lectures, tutorial system, laboratory work and design classes. The laboratory work trains the student in accurate recording of observations, drawing of logical conclusions and presentation of scientific reports. Besides, it gives the student an understanding of experimental methods and familiarizes him (or her) with the characteristics of engineering materials, equipment and machines.

The practical and laboratory work the three or four years of study forms a very important part of the course, so the students obtain the required standard in their laboratory course work before they graduate.

British educational system is fee-paying. The annual fee includes registration, tuition, examination, graduation and, in the case of full-time students, membership of the Union of Students.

Students course is designed on a modular basis. Modules are self-contained 'units' of study, which are taught and assessed independently of each other. When a student passes a module, he (she) gains a credit. All modules carry a number of credits. At the end of the term, the number of credits a student gets, determines the award he (she) receives. Each module is continuously assessed by coursework and/or end-of-term examinations. The minimum age for admission to the four – year course is normally 18 year. Departments usually interview all the candidates.

At present in Great Britain there a number of universities and colleges which give instruction in mechanical engineering, mining, metallurgy, etc.

2. Поставте запитання до підкреслених у тексті слів.

3. Дайте відповіді на запитання за змістом тексту.

1. Where can one get mining education in Great Britain?
2. What makes it possible for the University to keep in close touch with achievements in mining?
3. What are the students supposed to do in the laboratory?
4. Will the students have practical work in survey camps or in the laboratories?
5. What do the students use surveying equipment for?

4. Перепишіть речення; підкресліть у кожному з них дієслово-присудок і визначте його вищо-часову форму і стан. Перекладіть речення. У розділі Б) зверніть увагу на переклад пасивних конструкцій.

A) 1. The conventional longwall method is applicable to seams of all inclinations.
2. Longwall advancing and longwall retreating workings are the two main mining methods employed at our coal mines.

B) 1. Underground hydraulic mining is used at some mines.

2. Room – and – pillar working is greatly favoured in the United States of America.

5. Розкрийте дужки, поставте дієслово в Passive Voice. Речення перекладіть.

1. Coal (mine) in mines.
2. In this school children (teach) English and German.
3. This vase (make) of glass.
4. Rice (not to grow) everywhere in China, only in places where it is hot and wet.
5. We (show) the best collection yesterday.

6. Виберіть необхідне за змістом речення модальне дієслово (can, could, be, able to, needn't, may, must, mustn't). Речення перекладіть.

1. In Alaska we ... at present the first process of coal formation.
2. Our coal industry ... increase coal output.
3. We ... to improve conventional methods of mining.
4. Aerial photography ... play a very important part in prospecting virgin coal – fields.
5. The geological party ... to solve various problems.
6. Rocks ... be divided into igneous and sedimentary deposits.

7. Виберіть правильну форму дієслова. Зверніть увагу на вживання дієслів в Perfect та Continuous.

1. My friends are Scottish. They (come / are coming) from Glasgow.
2. She (listens / is listening) to a French song now but she doesn't understand it.
3. Why didn't you visit me while you (stayed / were staying) in Kiev?
4. I couldn't get in because I (have forgotten / had forgotten) my keys.
5. I (met / have met) him for the first time two years ago.
6. I (have lost / have been losing) my passport.

8. Заповніть пропуски в реченнях, виберіть відповідний прийменник (of, for, in, at, to, during, with, from, on):

The advantages ... electricity ... any other source ... power ... use ... the coal-face have become clear ... past 25 years. The development... face mechanization owes much ... the ability ... this source ... power. The comparatively rapid introduction ... electricity ... the coal-face has lead ... the development ... flame-proof equipment.

Тексти для самостійної роботи

Text 1

What is mining

Mining is a branch of industry occupied with the search for exploitation, and dressing of economic minerals and rocks.

Many minerals and rocks are today basic raw materials for various branches of industry: coal and oil are the most important sources of heat and energy; metals produced from ores, form the building materials give the raw materials for the chemical industry; others are used in building; salt is a foodstuff, etc.

The miner has two main tasks: to break out, and to transport to the surface the economic mineral.

Text 2

Purpose and importance of prospecting

Before any mining enterprise can be begun, the locality of the mineral has to be thoroughly investigated in order to ascertain its nature, the properties of the mineral mined, its richness (amount in per cent), thickness and a real extent of the deposit, and thus the reserves of the mineral, the shape of the deposits, the nature of the overlying and underlying beds, especially of the immediate roof and floor of the deposit, the inflow of water, the presence of firedamp or other gases, the necessity for and manner of ore dressing, etc. It is on all these various factors that size of the proposed mining enterprise depends as well as the way in which it will be equipped, the manner of mining, the cost of installation, and the profitableness of the enterprise. This preliminary work is called Prospecting and Exploration. By term prospecting we often mean the search for minerals.

Text 3

Underground exploration

Having finished the preliminary prospecting work we can start underground exploration and the opening – up the mine.

This is done by various horizontal, vertical and inclined openings, Drifts, Inclines and Shafts and in many cases by Boreholes.

Our first task is make the deposits accessible, or as the miners say, “to open it up”. How this is done depends on the position and form of the deposits, and on the configuration of the surface. In many cases we open the deposit by sinking shafts and by driving horizontally from them to the deposit the so – called Crosscuts. In mountainous areas we simply drive a tunnel to the deposit.

Having reached the ore and thus having access to it we proceed to explore it in horizontal and vertical directions. This is best done by driving Levels (or Drifts) from the place where our shaft or crosscut has struck it; by sinking Winzes in vertical deposits and inclines in inclined deposits.

This work is to explore the deposit. As we do not know whether it will be worth working; we call the drifts Exploratory drifts. These are made so that they can be

used for mining if the results of the exploration justify us in undertaking it. Thus these exploratory – shafts, inclines and drifts are then called the Development working, as they are established in such a manner that they divide the deposit into suitable blocks, which can be conveniently mined and from where broken ore can be easily transported.

Text 4 Lighting in mines

In nearly all mines the miner carries his light with him. Formerly this was a simple oil-lamp, which was used where there was no danger of fire-damp. Today lamps with carbide are in use. They are used because the light they give is very bright. But the lamp has to be cared for during work.

Electric lamps provided with a small accumulator, which is charged in the lamp-room, are also used. They have a good lighting power, but they are heavy.

In mines with firedamp it is necessary to use either electric lamps or safety-lamps. Its flame is surrounded on all sides by a dense wire netting, which prevents the flame from penetrating outside and thus igniting an inflammable mixture outside the lamp. In order that the worker should not be able to open such a lamp at will, it is provided with a magnetic or other type of lock, which can be opened only in the lamp-room with a strong magnet. In the lamp-room the lamps are also filled with fuel and maintained.

Of course, a safety-lamp cannot be lighted with a match or a lighter. Therefore it has to be equipped with a mechanism so that it can be lighted from within.

Electric lamps are very good for mines with firedamp, because their lighting power is great and their safety complete, but they have the great disadvantage that they do not warn the miner of the increasing content of methane in the air. For this reason the overmen and blasters still have safety-lamps even in mines where electric lamps are generally used, so that they can test the composition of the air at all times. Gas-detector electric lamps are being developed, however. [3: 176]

Answer the questions to the text

1. Why are lamps with carbide used today?
2. What is the disadvantage of the electric lamp?
3. Where are accumulators for electric lamps charged?
4. Why are safety lamps provided with a lock?
5. How can the overmen and blasters test the composition of the air?

Text 5 Ventilation in mines

Since men work in mines, a mine has to be ventilated like any other workroom. The air in mines is contaminated not only by the respiration but also, and to a greater extent, by the rotting of timber and the oxidation of carbonaceous matter, and by the use of explosives which may give off poisonous fumes. Accumulations of methane are sometimes stored under pressure in porous rocks.

Carbon dioxide is not only formed by oxidation of timber, coal, and other carbonaceous matter in the workings, but it may already exist in the strata. Some rocks contain hydrogen, especially in the neighbourhood of salt deposits. From this it is evident that the composition of the air in a mine differs somewhat from the composition of the air on the surface.

The purpose of ventilation is to remove the contaminated air and to introduce fresh air.

The purpose of ventilation is first of all to provide a sufficient quantity of air for respiration, and secondly to dilute objectionable gases, vapours and dust. Sometimes it is also necessary for lowering of the air temperature. All deep mines have to contend with high temperature, and much heat is developed in some coal mines by the oxidation of the coal.

Some mines do not require artificial ventilation, the natural flow of air being sufficient.

In large mines natural ventilation is not sufficient, and the air current has to be assisted by fans. This especially refers to coal mines and to mines where methane or carbon dioxide penetrate into the workings and where much dust is produced.

The function of the fan is to increase the flow of air through the mine airways overcoming the resistance of the workings and inertia of the air. A mine ventilated in this way must obviously have two openings, so that the air current may enter in one place, flow through the mine and leave the mine by the second opening. Thus, mines with artificial ventilation must have at least two shafts, one to act as a downcast, and the other as the upcast. [3: 133]

1. What is the air in mines contaminated by?
2. What is carbon dioxide formed by?
3. Why do some mines not require artificial ventilation?
4. What is the function of a fan?
5. What do all deep mines have to contend with?

Перелік рекомендованої літератури

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Контрольні завдання
з англійської мови для студентів – заочників
напряму підготовки «Гірництво»

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Підписано до друку Формат 60×84 1/16. Ум. друк. арк. 2,0
Друк лазерний. Замовлення № Тираж 75 прим.

Надруковано в Видавничому центрі КП ДВНЗ „ДонНТУ”