**Контрольная работа № 4**

Вариант 2

1.Прочитайте и переведите текст:

**Coal and Its Classification**

Coal is the product of vegetable matter that been formed by the action of decay, weathering, the effect of pressure, temperature and time millions of years ago.

Although coal is not a true mineral, its formation processes are similar to those of sedimentary rocks.

Structurally coal beds are geological strata characterized by the same irregularities in thickness, uniformity and continuity as other strata of sedimentary origin. Coal beds may consist of essentially uniform continuous strata or like other sedimentary deposits may be made up of different bands benches of varying thickness. Thus, in Fig. 3 one can see a seam limited by two more or less parallel planes, a shape which is typical of sedimentary rocks.

The benches may be separated by thin players of clay, shale, pyrite or other mineral matter, commonly called partings (Fig. 4.).

Like other sedimentary rocks coal beds may be structurally disturbed by folding and faulting.

According to the amount of carbon coal are classified into: brown coals, bituminous coals and anthracite. Brown coals are in their turn subdivided into lignite and common brown coal.

Although carbon is the most important element in coal, as many as 72 elements have been found in some coal deposits, including lithium, chromium, cobalt, copper, nickel, tungsten and other.

Lignite is intermediate in properties between peat and bituminous coal, containing when dry about 60 to 75 per cent of carbon and a variable proportion of ash. Lignite is a low-rank brown-to-back coal containing 30 to 40 per cent of moisture. Developing heat it gives from 2,500 to 4,000 calories. It is easily inflammable but burns with a smoky flame. Lignite is liable to spontaneous combustion. It has been estimated that about 50 per cent of the world’s total coal reserves are lignitic.

Brown coal is harder than lignite, containing from 60 to 65 per cent of carbon and developing greater heat than lignite (4,000 – 7,000 calories). It is very combustible and gives a brown powder. Bituminous coal is the most abundant variety, varying from medium to high rank. It is a soft, black, usually banded coal. It gives a black powder and contains 75 to 90 per cent of carbon .

It weathers only slightly and may be kept in open piles with little danger of spontaneous combustion if properly stored. Medium-to-low volatile bituminous coals may be of coking quality. Coal is used intensively in blast furnaces for smelting iron ore. There are non-coking varieties of coal.

As for the thickness, the beds of this kind of coal are not very thick (1-1.5 metres). The great quantities of bituminous coal are found in the Russian Federation.

Anthracite or ‘’hard’’ coal has a brilliant luster containing more than 90 per cent of carbon and low percentage of volatile matter. It is used primarily as a domestic fuel, although it can sometimes be blended with bituminous grades of coal to produce a mixture with improved coking qualities. The largest beds of anthracite are found in Russia, the USA and Great Britain.

Coal is still of great importance for the development of modern industry. It may be used for domestic and industrial purposes. Being the main source of coke, coal is widely used in the iron and still industry. Lignite, for example ether in the raw state or in briquetted form, is a source of industrial carbon and industrial gases.

There is a strong tendency now for increased research into new technologies to utilize coal. No doubt, coal will be used as a raw material for the chemical industry and petrochemical processes. All these processes involve coal conversion which include gasification designed to produce synthetic gas from coal as the basis for hydrogen manufacture, liquefaction (разжижение) for making liquid fuel from coal and other processes.

**2. Укажите, какие предложения соответствуют содержанию текста. Подтвердите свои ответы фактами из текста.**

1. Brown coal is hard and it is not liable to spontaneous combustion.

2. Bituminous coal weathers rapidly and one cannot keep it in open piles.

3. Being intensively used in the iron and steel industry bituminous coal varies from medium to high rank.

4. Anthracite or hard coal, the highest in percentage of carbon, can be blended with bituminous grades of coal.

**3. Ответьте на следующие вопросы:**

1. What is the difference between lignite and brown coal?

2. Is bituminous coal high- or low-volatile?

3. Does anthracite contain 90 per cent of carbon?

4. Where are the largest deposits of anthracite found? And what can you say about bituminous coal?

5. What do you know about the utilization of coal?

**4. Найдите в правой колонке английские эквиваленты следующих слов и словосочетаний слов:**

|  |  |
| --- | --- |
| 1. тип угля  2. некоксующийся уголь  3. доменная печь  4. содержание углерода  5. смешиваться с другими углями  6. улучшенного качества  7. складировать уголь  8. теплотворная способность  9 быстро выветриваться | а) heat value  б) amount of carbon  в) coal rank  г) to store coal  д) to weather rapidly  е) non-cooking coal  ж) blast furnace  з) of improved quality  и) to blend with other coals |

**5.. заполните пропуски в предложениях, используя следующие слова:**

|  |  |  |
| --- | --- | --- |
| **a) continue** | **continuous** | **continuity** |

1. Fossil fuels … to play an important role in the national economy of the country.

2. Like other sedimentary strata coal beds are characterized by uniformity and … .

3. In mining bedded deposits … faces (забои) are used.

|  |  |  |
| --- | --- | --- |
| **б) distrub** | **disturbance** | **disturbed** |

1. Any change in the normal bedding of a seam (fault or fold) is called a … .

2. Coal seams may be structurally … by faulting or folding.

3. Folds … coal seams without a break and sometimes faults … them with a break.

**6. Переведите предложения.**

1. Coal beds may consist of different bands of varying thickness.

2. Laser is used in mining. This is a more recent development replacing theodolites in surveying.

3. Speaking about the future of coal, it is necessary to note the production of liquid fuels such as gas and oil from coal.