4. Mining

Exercise

1 A. Question

Fill in the blanks:

Mining is also known as a …….. Industry.

Answer

Mining is also known as a robber industry.

Reason: mining is the extraction of valuable minerals or other geological materials from the earth. Mining is also called as robber industry. Mining is a primay activity.

1 B. Question

Fill in the blanks:

Open cast mining is also called …….. .

Answer

Open cast mining is a surface mining technique or extracting rocks or minerals from the earth by their removal from an open pit or directly from earth surface.

1 C. Question

Fill in the blanks:

Minerals are non-renewable …….. .

Answer

Minerals are non-renewable resources.

Reason: Minerals are non-renewable resources as once they are used up completely, they cannot be reproduced unlike solar or wind or tidal energy. So the conservation and sustainable use of such resources is extremely important.

1 D. Question

Fill in the blanks:

Mica is used in …….. Industries.

Answer

Mica is used in electrical Industries.

Reason: Basically, mica is used for thermal as well as electrical insulators, constructing capacitors and atomic force microscopy.

1 E. Question

Fill in the blanks:

…….. Are tower like features in the oil fields.

Answer

Derricks are tower like features in the oil fields. It is a kind of crane with a movable pivoted arm for moving heavy weights. Used in oil fields.

2 A. Question

Choose the correct answer:

The mineral founds in the alluvial deposit is ……. .

A) Gold

B) Iron

C) Coal

Answer

The mineral founds in the alluvial deposit is gold. Alluvial mining is a process in which minerals are extracted by panning or dredging like tin or gold.

2 B. Question

Choose the correct answer:

The ore of aluminium is ……. .

A) Sulphur

B) Salt

C) Bauxite

Answer

The ore of aluminium is bauxite. It is called aluminium oxide Al_2O_3 from which aluminium can be extracted by the electrolysis process.

The formula is Al_2O_3.

2 C. Question

Choose the correct answer:

Anthracite is the ore of …….. .

A) Iron

B) Coal

C) Gold

Answer

Anthracite is the most valuable ore of coal as it has the highest carbon content and least impure. Generally, it is used in the metallurgy section and for power generation purposes.

2 D. Question

Choose the correct answer:

A kind of non-metallic mineral is ……..

A) Petroleum

B) Sulphur

C) Iron

Answer

Non-metallic minerals are those minerals which do not have iron content in them. Sulphur is a non-metallic mineral.

3. Question

Match the following:

1. Fuel	i) Tin
2. Malaysia	ii) Gold
3. Alluvial mining	iii) Quarrying
4. Limestone	iv) Chile
5. Copper	v) Coal

Answer

1. Fuel Coal

Fuel is any material that can be used to produce energy. Coal is a fuel it is used in many activities like- cooking food, in an industrial process, etc.

2. Malaysia Tin

Tin is mined in Malaysia, Bolivia, Indonesia. China is the largest producer of tin in the world. Malaysia also has large reserves of tin mineral. It is an important mineral for development.

3. Alluvial mining Gold

Alluvial mining is used to extract minerals by panning or dredging minerals like tin and gold which are sometimes mixed with soil in the river bed.

4. Limestone Quarrying

Quarrying is mining if construction materials like limestone or red sandstone from the earth's surface. It is a hard sedimentary rock, compose mainly of calcium carbonate dolomite used in building materials or in cement production.

5. Copper Chile

Chile is a South American country. Chile is the largest copper producer of the world in present time second id Peru. Copper is a chemical element with symbol Cu and atomic number 29.

4 A. Question

Answer briefly:

How do minerals occur in the Earth?

Answer

Minerals are generally found in the rocks or deeply embedded in the earth. They can be found in the cracks, faults or joints. Sometimes they are found as horizontal deposits in the rock strata. Certain minerals like gold and tin are found along with the alluvial deposits.

The smaller occurrence is called veins, and the larger occurrence are called lodes.

Ocean water also contains a large number of minerals like common salt, magnesium, and bromine.

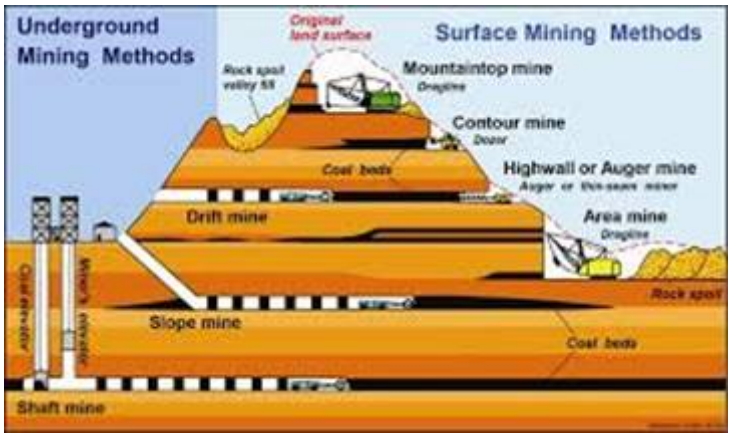
4 B. Question

Answer briefly:

Write a note on shaft mining.

Answer

Shaft mining is used when the bottom is inaccessible, and miners dig directly until they reach the desired depth. The vertical central shaft of a shaft mine is called service cage and is used for transportation purpose. It is also called shaft sinking.



4 C. Question

Answer briefly:

Name the different types of coal.

Answer

The different types of coal are:

- Peat
- Lignite or brown coal
- Anthracite
- Bituminous coal
- Steam coal
- Graphite(best quality)

4 D. Question

Answer briefly:

What are mineral fuels?

Answer

A fuel taken or stripped from the interior of the earth, such as petroleum, coal, peat, shale oil, etc is termed as mineral fuel. They are used for electrification, transportation, heating, building blocks of several elements, etc. They are non-renewable resources.

4 E. Question

Answer briefly:

What is alluvial mining?

Answer

It is a type of surface mining methods used to extract minerals like gold and tin by dredging from the river bed when these minerals are mixed with the alluvium.

5 A. Question

Write in 200 words:

Describe the types of mining.

Answer

Mining is the extraction of minerals and other materials from the interior of the earth.

• It has immense importance in today's world as the household or industries depend on the minerals available on the planet.

• There are various types of mining: Surface mining (for minerals found close to the surface of the earth). It can be further divided into three types: open cast, strip, alluvial.

• Open cast: Digging of the materials found at the surface of the earth.

• Strip: Involves removing of long strips of soil and rock and other weathered material.

• Alluvial: Extraction of minerals by dredging from the beds of rivers. (Tin and gold).

• Quarrying: It is another type of mining used for extracting building materials like Limestone.

• Underground (Sub surface) mining: Ores are extracted from greater depths beneath the surface of the earth. This kind of mining is expensive as well as risky. Ex. Coal

• Drilling: It is the extraction of oil and petroleum.

• There are other types of mining like contour mining, highwall mining, etc.

• There are some side effects of mining like soil erosion, water erosion, and air pollution. So mining areas after work must not be left abandoned.

5 B. Question

Write in 200 words:

Write an essay on metallic minerals.

Answer

• Metallic minerals can be defined as those minerals with a metallic lustre and having properties of metals like high specific gravity, malleability, ductility, conductivity, etc.

• Gold is a very common example. It has industrial use, and it is heavily used in jewellery making. It is used in medical fields as well. Gold is generally detected by chemical methods.

• Silver is another example which has vast use in making jewellery, currency, utensils, water purifiers, etc. It has high electrical conductivity and appreciable thermal conductivity.

• Lead is heavy metal, but it is soft and malleable. It has a low melting point. It is used for construction and plumbing purposes. It is used for making paints and alloys.

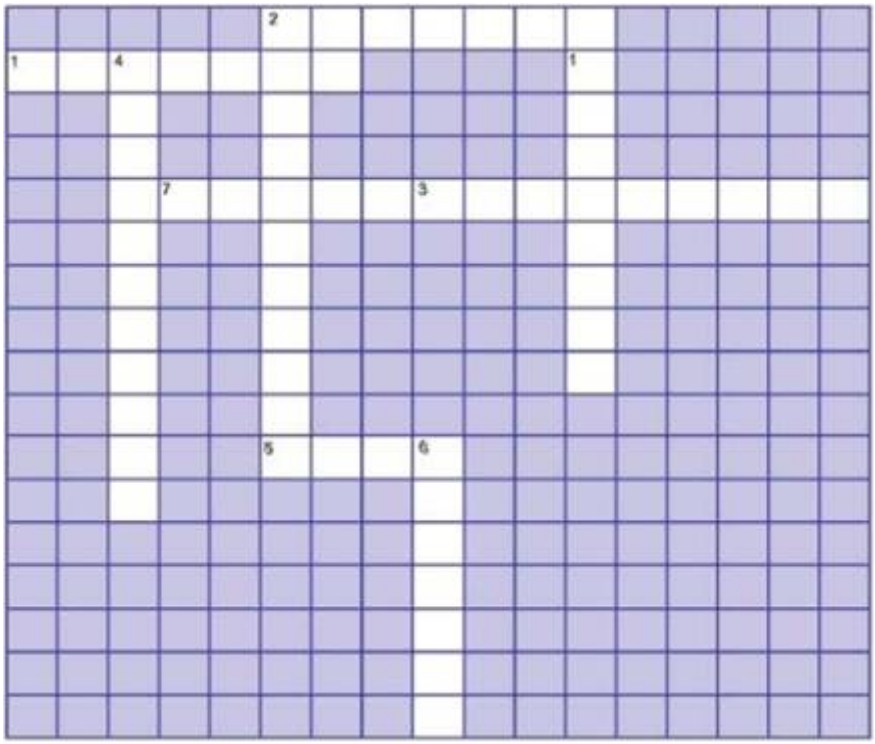
• Copper is another example of a metallic mineral. It is soft, malleable and ductile. It has high values of thermal and electrical conductivity. It is used for making ornaments, construction purpose, alloy making, etc.

Formative Assessment

1. Question

Activity:

Cross word puzzle: solve it with the help of the clues given below.



Across:

1. An ore of Aluminium (7)

3. A type of iron ore (9)

5. Mineral extracted by placer or alluvial method (4)

7. A non metallic mineral (6)

Down:

1. Mining closer to the surface (9)

2. Removing long strips overlying rock and soil (11).

4. Mining at greater depths (11)

6. Tower like features at the oil fields (8)

Answer

Across:

1. An ore of Aluminium (7) - BAUXITE

3. A type of iron ore (9)-MAGNETITE

5. Mineral extracted by placer or alluvial method (4)-GOLD

7. A non-metallic mineral (6)-GYPSUM

Down:

1. Mining closer to the surface (9) – OPEN CAST

2. Removing long strips overlying rock and soil (11)-STRIPMINING

4. Mining at greater depths (11)-UNDERGROUND

6. Tower like features at the oil fields (8)-DERRICKS

2 A. Question

Project work:

a. Collect pictures of different types of mining.

Answer

Powder River basin...

Alluvial mining.

Drilling

Underground Mining

2 B. Question

Project work:

List the mineral (metallic and non-metallic) found in different districts of our state.

Answer

Districts	Minerals found	Metallic/non metallic
Chennai	Quartz	Non-metallic
Kanyakumari	Titanium	Metallic
Periyar	Quartz	Non-metallic
Pudukottai	Fireclay	Non -metallic
Salem	Bauxite	Metallic
Tuticorin	Gypsum	Non-metallic
Vellore	Maqnetite	Metallic
Coimbatore	Feldspar, Gypsum	Non metallic

2 C. Question

Project work:

Do we have mining activities in our state? Do a project on any one activity and write a report on it.

Answer

This is a chart of proven reserves of major minerals of Tamil Nadu in 2001 by *Department of Geology and Mining* with figures in tonnes.

Mineral	Reserve	National share
Lignite	30,275,000	87%
Vermiculite	2,000,000	66%
Garnet	23,000,000	42%
Zircon	8,000,000	38%
Graphite	2,000,000	33%
Ilmenite	98,000,000	28%
Rutile	5,000,000	27%
Monazite	2,000,000	25%
Magnesite	73,000,000	17%

(Source- Tamil Selvi)

'NLC India Limited (NLCIL) formerly Neyveli Lignite Corporation is a 'Navratna' profit making, Government of India Enterprise engaged in mining of lignite and generation of power through lignite based thermal power plants. NLCIL was established by GoI in 1956, following the discovery of lignite deposits in Neyveli, Tamil Nadu. NLCIL comes under administrative control of Ministry of Coal, GoI and serves as an important source of power generation to the states of Tamil Nadu, Andhra Pradesh, Karnataka, Kerala, Telangana, Rajasthan and Union Territory of Puducherry. NLCIL currently operates four open cast lignite mines of the total capacity of 30.6 Million Tonnes per Annum (MTPA) and five thermal power stations with a total installed capacity of 3240 MW. The company, through its subsidiary NTPL, has also recently commissioned a 1000 MW coal based power plant (comprising 2 Units of 500 MW capacity each), 10 MW solar plant and 30 MW wind power plant thus bringing the total installed capacity of the company to 4280 MW.

The main activities of NLC are Lignite Mining and Power Generation. However, the company has also diversified into a generation of renewable energy through Solar Power Generation and Wind Power Generation.

The purposes of the project are:

1. Lignite Mining

2. Thermal Power Generation

3. Solar Energy Generation

4. Wind Power Generation

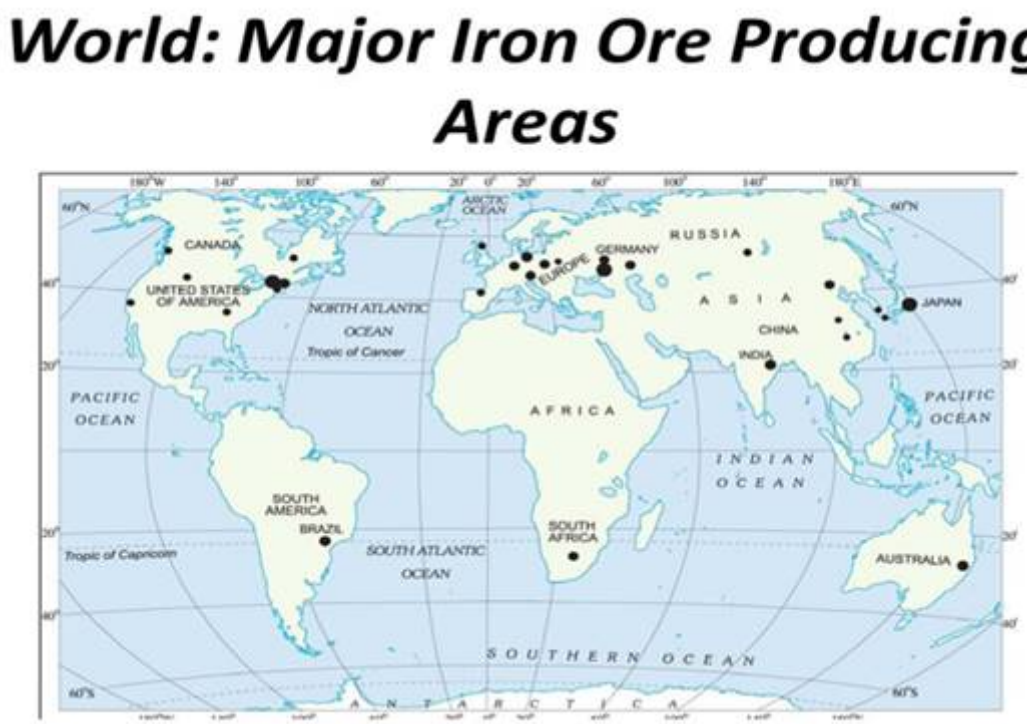
5. Coal Mining.

3. Question

Map Skill:

On the world map, mark the iron ore regions.

Answer



4 A. Question

Discussions:

Discuss the methods of conservations of fuel minerals.

Answer

The methods of conservation of fuel minerals are:

• Limited use of the fuel minerals as most of they are non-renewable sources of energy.

• They are a huge source of pollution but at the same time life without them is impossible. So, there must be a sustainable use of such resources.

• Proper remedial measures should be used while cooking. For example, covering and boiling of food, avoiding too much of overheating, avoid keeping food in the freezer and re-cooking them, etc.

• Less use of electronic items. Most of the appliances we use are made of petrochemicals elements, so less use would ensure lesser damage and wear-out and in turn lesser demand.

• Recycling of the items must be done.

• Wastage of resources must be avoided by strict rules and regulations.

• Use air conditioning sparingly.

• Make drivers energy conscious.

4 B. Question

Discussions:

Imagine a day without fuel in your house or in industry – discuss.

Answer

• A day without fuel is unimaginable. It would be the worst kind of incident that can ever happen. And we can call it has a manmade disaster.

• What do we do after getting up in the morning? Of course, we brush our teeth and then wait for tea or coffee... If there were no fuel, there would be no source of cooking!!!!!!!! So our breakfast, lunch, and dinner are cancelled.

• After that, we get ready and go to schools, colleges, and workplaces. But there would be no autos or buses or taxis running as there would be no fuel.

• There would be no trains running. (only a small fraction of trains run through electrification)

• There would be no ferries or ships travelling as there is no fuel at all.

• In hospitals the things we see such as latex gloves or disposable syringes they are petrochemical products...so no fuel would mean non availability of such things.

• There would be no airplanes or helicopters in action as well.

• We would not be even able to use a maximum of the electrical devices such as Android phones or laptops as they are derived from petrochemical products.

• Industries frankly would come to a standstill as the main power source is the fuels. Be it heating, purifying or reaction industries require a power source.