Chapter :5
Minerals and Energy Resources

Q.1A Which one of the following minerals is formed by decomposition of rocks, leaving a residual mass of weathered materials?

A. Coal

B. Bauxite

C. Gold

D. Zinc

Ans.: Bauxite is formed after the decomposition of surface rocks. The soluble constituent within rocks evaporates and what is left behind as residue is the ore of Bauxite from which then Aluminium is extracted.

Q.1B Koderma, in Jharkhand is the leading producer of which one of the following minerals?

A. Bauxite

B. Mica

C. Iron ore

D. Copper

Ans.: Koderma is the leading producer of Mica. It is located in Hazaribagh belt of Jharkhand. Jharkhand, as a whole, is quite rich in minerals.

Q.1C Minerals are deposited and accumulated in the strata of which of the following rocks?

A. Sedimentary rocks

B. Metamorphic rocks

C. Igneous rocks

D. None of these

Ans.: Minerals are found in layers or strata in sedimentary rocks. Minerals are accumulated in horizontal strata after being exposed to high heat and pressure for a long period of time. Coal, iron ore, gypsum, potash salt etc are formed in this way.

Q.1 D Which one of the following minerals is contained, in the Monazite sand?

A. Oil

B. Uranium

C. Thorium

D. Coal

Ans.: Monazite is an important ore for Thorium. Presence of Thorium makes Monazite radioactive.

Q.2A Answer the following questions in about 30 words:

Distinguish between the following in not more than 30 words.

(a) ferrous and non-ferrous minerals.

(b) conventional and non-conventional sources of energy

Ans.:

(i) (a) Ferrous and non-ferrous minerals

Ferrous minerals	non-ferrous minerals
These minerals contain iron.	These minerals do not contain iron.
They provide a strong base for the development of metallurgical industries.	They play a vital role in a number of metallurgical, engineering and electrical industries.
Ferrous minerals constitute three fourth of total mineral production in India.	India's reserves of non ferrous minerals is not very large
Example: Iron ore and manganese.	Example: Bauxite, lead and gold.

Conventional Source of Energy	Non-Conventional Source of Energy
These are generally exhaustible and polluting.	These are usually inexhaustible and non-polluting.
Some Examples are: Firewood, Coal and Petroleum	Some Examples are: Solar, Wind, Tidal and Atomic Energy

Q.2B Answer the following questions in about 30 words:

What is a mineral?

Ans.: Mineral is a homogenous, naturally occurring substance with a distinguishable internal structure. Minerals are found in rocks and alike structures. Over 2000 minerals have been identified till yet. The hardest mineral is diamond and the softest is talc.

Q.2C Answer the following questions in about 30 words:

How are minerals formed in igneous and metamorphic rocks?

Ans.: Minerals could be found in cracks and crevices within igneous and metamorphic rocks. Minerals are initially in liquid/molten or

gaseous form. They rise through the crack towards the earth's surface and they solidify as they move upwards.

Q.2D Answer the following questions in about 30 words:

Why do we need to conserve mineral resources?

Ans.: Minerals are non renewable resources. They take hundreds and thousands of years to be made. Therefore, we must use them judiciously so that more and more generations can take benefit of mineral energy resources.

Q.3A Answer the following questions in about 120 words.

Describe the distribution of coal in India.

Ans.: Coal is an important fossil fuel of India as it is generously available and is used for meeting a major share of our country's energy demands. It is for this reason that India is excessively dependent on coal to fulfil its commercial energy demand. Coal is found in India in two geological rock series which is Gondwana and Tertiary. Coal in Gondwana rock series is about 200 million years old, while the tertiary deposits are approximately 55 million years old. The major ores of Gondwana coal are found in the Damodar valley (West Bengal, Jharkhand). Jharia, Raniganj and Bokaro are important coalfields for Gondwana coal. The Godavari, Mahandi, Sone and Wardha valleys also contain coal deposits of Gondwana rock series. Tertiary coal deposits occur mainly in the north-eastern states of Meghalaya, Assam, Arunachal Pradesh and Nagaland.

Q.3B Answer the following questions in about 120 words.

Why do you think that solar energy has a bright future in India?

Ans.: (a) India is a tropical country. Most of the areas of India receive abundant sunlight. Because of this fact, solar energy could be a legitimate source of energy.

(b) We have technologies such as Photovoltaic which can convert sunlight directly into electricity. This technology could be used to provide electricity in rural areas where there are huge open lands and sunlight can be tapped efficiently.

(c) With our environment deteriorating day by day, many environmentalist favour use of solar energy to cook food which will in turn help in reducing consumption of cow dung and firewood.

(d) Solar energy can be used in multiple ways which adds on to its popularity. For instance: the largest solar plant of India located at Madhapur, near Bhuj (Gujarat) uses solar energy to sterlise milk cans.

Activity:

Q.1 Fill the name of the; correct mineral in the crossword below:

Across

1. A ferrous mineral (9)
2. Raw material for cement industry (9)
3. Finest iron ore with magnetic properties (9)
4. Highest quality hard coal (10)
5. Aluminium is obtained from this ore (7)
6. Khetri mines are famous for this mineral (6)
7. Formed due to evaporation (6)

Down

1. Found in placer deposit (4)

2. Iron ore mined in Bailadila (8)

3. Indispensable for electrical industry (4)

4. Geological Age of coal found in north east India (8)

5. Formed in veins and lodes (3)

Ans.:

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			E												
	2L	I	M	E	S	T	O	N	E						
			A												
			T		4T		3M	A	G	N	E	T	I	T	E
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	4A	N	T	H	R	A	3C	I	T	E					
			E		T		O								
					I		A								
	1R				A		L		5B	A	U	X	I	5T	E
6C	O	P	P	E	R									I	
	C				Y									N	
	K					7G	Y	P	S	U	M				

Across

1. MANGANESE (Manganese is mainly used for manufacture of steel. It is also used in paints, bleaching powder etc)

2. LIMESTONE (Limestone is a sedimentary rocks. It is used as a building material and also in manufacture of Iron)

3. MAGNETITE (Magnetite is the most magnetic mineral out of all the naturally occurring minerals on Earth. Magnetite is one of the main iron ores.)

4. ANTHRACITE (Anthracite is a variety of coal which is hard and compact. It has highest carbon content.)

5. BAUXITE (Bauxite is formed through decomposition of solid rocks whereby soluble constituents evaporate and a weathered material remains which contain ores)

6. COPPER (Copper is soft and malleable. It has high thermal energy. It is used as a conductor of heat and electricity)

7. GYPSUM (Gypsum is main ingredient of plaster of paris, blackboard chalk etc. It is a soft mineral)

Down

1. ROCK (Many minerals are found in the form of large rocks. Some rocks have only one mineral while many others have numerous minerals together)

2. HEMATITE (Hematite is a form of iron but it has limited economic use. It is not as popular as iron ore but has some specialised uses)

3. COAL (Coal occurs in layers called Coal Beds. It is a metamorphic rock)

4. TERTIARY (Tertiary is one of the two geological rock series in which coal is found)

5. TIN (Tin is largely used for its anti-corrosion property. It is also used in food packaging because of its low toxicity)