

Chapter 5 Minerals and Energy Resources

1. Multiple choice questions.

(i) Which one of the following minerals is formed by the decomposition of rocks, leaving a residual mass of weathered material?

- a. Coal (b) Bauxite (c) Gold (d) Zinc

Solution: (b) Bauxite

(ii) Koderma, in Jharkhand, is the leading producer of which one of the following minerals?

- a. Bauxite (b) Mica (c) Iron Ore (d) Copper

Solution: (b) Mica

(iii) 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 the above

Solution: (a) Sedimentary Rocks

(iv) Which one of the following minerals is contained in the Monazite sand?

- a. Oil (b) Uranium (c) Thorium (d) Coal

Solution: (c) Thorium

2. Answer the following questions in about 30 words.

(i) Distinguish between the following in not more than 30 words.

- a. Ferrous and non-ferrous minerals
b. Conventional and non-conventional sources of energy

Solution:

a. Ferrous minerals are the metallic minerals containing iron. For e.g.- Iron ore, Manganese, Nickel, Cobalt etc.

While non-ferrous minerals are also metallic but they do not contain iron. For e.g.- Manganese, Nickel, Cobalt etc.

- b. Conventional sources of energy include firewood, cattle dung cake, coal, petroleum, natural gas and electricity (both hydel and thermal).

While non-conventional sources of energy are solar, wind, tidal, geothermal, biogas and atomic energy.

(ii) What is a mineral?

Solution:

Minerals can be defined as a homogenous, naturally occurring substance with a definable internal structure. Minerals are found in varied forms in nature, ranging from the hardest diamond to the softest talc.

(iii) How are minerals formed in igneous and metamorphic rocks?

Solution:

In igneous and metamorphic rocks, minerals can occur in the cracks, crevices, faults or joints. The smaller deposits are called veins and the larger ones are called lodes.

(iv) Why do we need to conserve mineral resources?

Solution:

Mineral deposits form only one percent of the earth's crust. We need to conserve mineral resources because the geological processes of mineral formation are so slow that the rates of replenishment are very small in comparison to the current rate of consumption.

3. Answer the following questions in about 120 words.

(i) Describe the distribution of coal in India

Solution:

In India, coal can be found in rock series of two main geological ages:

- Gondwana (200 million years old)
- Tertiary deposits (55 million years old)

The major resources of Gondwana coal are located in:

- Damodar Valley (West Bengal - Jharkhand) - Jharia, Raniganj and Bokaro are important coalfields.
- Godavari valley
- Mahanadi valley
- Son valley
- Wardha valley

Tertiary coal occurs in the northeastern states of Meghalaya, Assam, Arunachal Pradesh and Nagaland.

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

Solution:

Solar Energy has a bright future in India because we are a tropical country with enormous possibilities of tapping solar energy. Solar energy is fast becoming popular in rural and remote areas. India's largest solar power plant is located at Madhapur, near Bhuj, where solar energy is used to sterilise milk cans. It is expected that use of solar energy will be able to minimise the dependence of rural households on firewood and dung cakes, which in turn will contribute to environmental conservation and adequate supply of manure in agriculture.

Solar energy is a non-conventional source of energy which is also renewable. Use of solar energy will not only be good for the environment, but it will also reduce our dependence on oil and gas.

