CHAPTER 7

Mineral and Energy Resources

A mineral is a natural substance of organic or inorganic origin with definite chemical and physical properties.

The mineral resources provide the country with the necessary base for industrial development.

Types of Mineral Resources

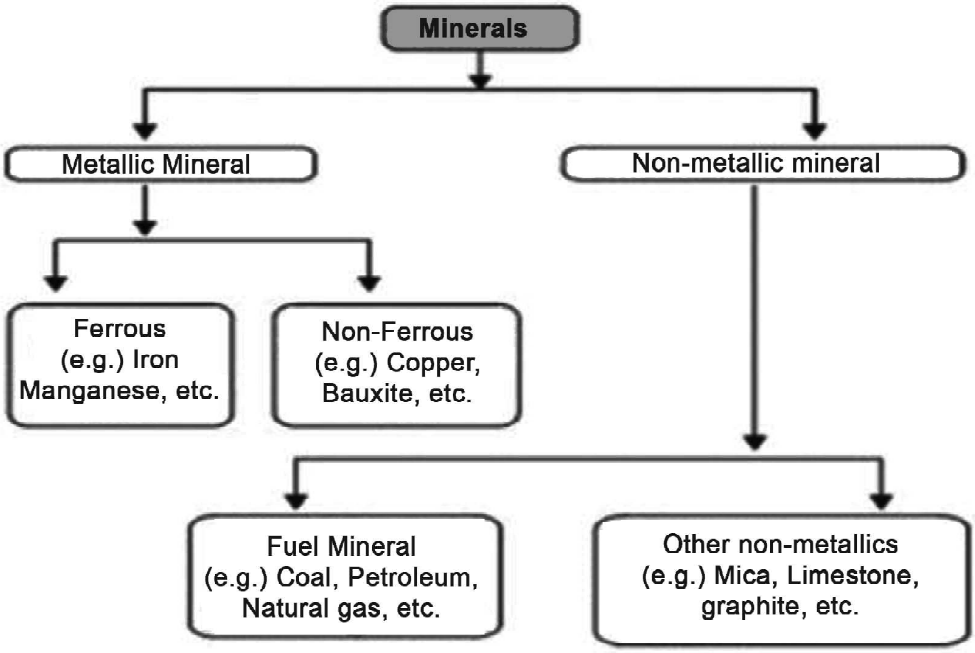

Figure 7.1: Classification of Minerals

Minerals have Certain Characteristics

- These are unevenly distributed over space.
- There is inverse relationship in quality and quantity of minerals i.e. good quality minerals are less in quantity as compared to low quality minerals.
- All minerals are exhaustible over time.

Distribution of Minerals in India

Minerals are generally concentrated in three broad belts in India.

1. **The North-Eastern Plateau Region:** Chhotanagpur (Jharkhand), Odisha Plateau, West Bengal and parts of Chhattisgarh. Iron ore coal, manganese, bauxite, mica.
2. **The South-Western Plateau Region:** Karnataka, Goa and contiguous Tamil Nadu uplands and Kerala. Iron ore, manganese and limestone.
3. **The North-Western Region:** Aravali in Rajasthan and part of Gujarat .Copper, zinc have been major minerals.

   Rajasthan is rich in building stones i.e. sandstone, granite, marble. Gypsum and Fuller's earth deposits are also extensive.

Ferrous Mineral

Iron Ore: India has the largest reserve of iron ore in Asia. The two main types of ore found in our country are haematite and magnetite.

About 95 per cent of total reserves of iron ore is located in the States of Odisha, Jharkhand, Chhattisgarh, Karnataka, Goa, Telangana, Andhra Pradesh and Tamil Nadu.

Orissa Mines: Gurumahisani, Sulaipet, Badampahar (Mayurbhaj), Kiruburu (Kendujhar) and Bonai (Sundergarh).

Jharkhand Mines: Noamundi and Gua are located in Poorbi and Pashchimi Singhbhum districts

Karnataka mines: Ballari district, Baba Budan hills and Kudremukh in Chikkamagaluru district.

Salem and Nilgiris districts of Tamil Nadu are other iron mining regions. Goa has also emerged as an important producer of iron ore.

Manganese: Odisha is the leading producer of Manganese.Iron ore belt -Bonai, Kendujhar, Sundergarh, Gangpur, Koraput, Kalahandi and Bolangir.

Non-Ferrous Minerals:

Bauxite: Odisha happens to be the largest producer of Bauxite. Kalahandi and Sambalpur are the leading producers.

Copper: The Copper deposits mainly occur in Singhbhum district in Jharkhand, Balaghat district in Madhya Pradesh and Jhunjhunu and Alwar districts in Rajasthan.

Non-metallic Minerals

Mica: Mica in India is produced in Jharkhand, Andhra Pradesh, Telanganga and Rajasthan followed by Tamil Nadu, West Bengal and Madhya Pradesh.

Energy Resources

Coal: The most important Gondwana coal fields of India are located in Damodar Valley. They lie in Jharkhand-Bengal coal belt and the mportant coal fields in this region are Raniganj, Jharia, Bokaro, Giridih, Karanpura. Jharia is the largest coal field followed by Raniganj. Tertiary coals occur in Assam, Arunachal Pradesh, Meghalaya and Nagaland.

Petroleum: In Assam, Digboi, Naharkatiya and Moran are important oil producing areas. Mumbai High which lies 160 km off Mumbai was discovered in 1973 and production commenced in 1976.

Natural Gas: Tamil Nadu, Odisha and Andhra Pradesh), Tripura, Rajasthan and off-shore wells in Gujarat and Maharashtra.

Non-Conventional Energy Sources

Nuclear Energy Resources: Uranium deposits occur in the Dharwar rocks. locations along the Singbhum Copper belt. Thorium is mainly obtained from monazite and ilmenite in the beach sands along the coast of Kerala and Tamil Nadu.

Solar Energy: The western part of India has greater potential for the development of solar energy in Gujarat and Rajasthan.

Wind Energy: In Rajasthan, Gujarat, Maharashtra and Karnataka, favourable conditions for wind energy exist.

Tidal and Wave Energy: Large tidal waves are known to occur along the west coast of India. Hence, India has great potential for the development of tidal energy along the coasts but so far these have not yet been utilized.

Geothermal Energy: In India, a geothermal energy plant has been commissioned at Manikaran in Himachal Pradesh.

Bio-energy: It will also process the waste and garbage and produce energy. This will improve economic life of rural areas in developing countries, reduce environmental pollution, enhance self-reliance and reduce pressure on fuel wood. One such project converting municipal waste into energy is Okhla in Delhi.

Exercise

1. Which one of the following is non-ferrous mineral?
(a) Iron (b) Copper
(c) Manganese (d) Mica

2. Which one of the following minerals is not found in the North-Eastern Plateau region?
(a) Iron ore (b) Coal
(c) Manganese (d) Gypsum

3. Which one of the following river valleys coal deposit is not found?
(a) Damodar (b) Sone
(c) Mahanadi (d) Krishna

4. Which of the following minerals are used in Cement Industry?
(a) Dolomite (b) Gypsum
(c) Copper (d) Both (a) and (b)

5. Which one of the following are not the characteristics of mineral?
(a) Unevenly distributed (b) Exhaustible over time.
(c) High impurities (d) Less quantity

6. Which one of the following states has monazite deposit?
(a) Tamil Nadu (b) Kerala
(c) Maharashtra (d) Karnataka

7. Which one of the following minerals is not a building stone?
(a) Magnesium (b) Sandstone
(c) Granite (d) Marble

8. Sundergarh, Mayurbhanj and Jhar places are famous for which of the following minerals?
(a) Copper (b) Uranium
(c) Coal (d) Iron ore

9. Noamundi and Gua are the important iron ore mines located in which of the following states?
(a) Orissa (b) Jharkhand
(c) Bihar (d) West Bengal

10. Which one of the following states is a leading producer of Manganese?
(a) Jharkhand (b) Orissa
(c) Chhattisgarh (d) West Bengal

11. Baba Budan hills and Kudremukh are famous for which mineral in India?
(a) Copper (b) Uranium
(c) Magnesium (d) Iron ore

12. Kalahandi and Sambalpur are the leading producers of which of the following mineral in India?
(a) Bauxite (b) Mica
(c) Copper (d) Coal

13. Which one of the following products is not use copper in manufacturing process?
(a) Jewelry (b) Making wires
(c) Electric motors (d) Aluminium

14. Jharia in Jharkhand is famous for which of the following energy resources?
(a) Coal (b) Petroleum
(c) Natural gas (d) Uranium

15. In which year Mumbai high was discovered?
(a) 1972 (b) 1973
(c) 1974 (d) 1975

16. In which year Natural Gas Commission was set up?
(a) 1956 (b) 1970
(c) 1961 (d) 1952

17. Digboi, Naharkatiya and Moran are important oil producing areas located in which state of India?
(a) Maharashtra (b) Assam
(c) Karnataka (d) Rajasthan

18. Which of the following minerals is used in Nuclear energy?
(a) Uranium (b) Thorium
(c) Mica (d) Both (a) and (b)

19. Which of the following is a nuclear power projects in India?
(a) Tarapur (b) Kalpakkam
(c) Kaiga (d) All the above

20. At which one of the following places geothermal energy is commissioned in India?
(a) Manikaran (b) Palakkad
(c) Kollam (d) Udaipur

Answers

1. (b)	**2.** (d)	**3.** (d)	**4.** (d)	**5.** (c)	**6.** (b)	**7.** (a)	**8.** (d)	**9.** (b)	**10.** (b)
11. (d)	**12.** (a)	**13.** (d)	**14.** (a)	**15.** (b)	**16.** (a)	**17.** (b)	**18.** (d)	**19.** (d)	**20.** (a)

Explanations

1. b Those which do not have iron content are non-ferrous such as copper, bauxite, etc.

2. d It has variety of minerals viz. iron ore coal, manganese, bauxite, mica.

3. d Over 97 per cent of coal reserves occur in the valleys of Damodar, Sone, Mahanadi and Godavari.

4. d Dolomite and limestone provide raw materials for cement industry.

5. c Minerals have certain characteristics. These are unevenly distributed over space. There is inverse relationship in quality and quantity of minerals i.e. good quality minerals are less in quantity as compared to low quality minerals. The third main characteristic is that all minerals are exhaustible over time

6. b Kerala has deposits of monazite and thorium, bauxite clay.

7. a Rajasthan is rich in building stones i.e. sandstone, granite, marble.

8. d In Odisha, iron ore occurs in a series of hill ranges in Sundergarh, Mayurbhanj and Jhar.

9. b Jharkhand has some of the oldest iron ore mines and most of the iron and steel plants are located around them. Most of the important mines such as Noamundi and Gua are located in Poorbi and Pashchimi Singhbhum districts.

10. b Odisha is the leading producer of Manganese. Major mines in Odisha are located in the central part of the iron ore belt of India, particularly in Bonai, Kendujhar, Sundergarh, Gangpur, Koraput, Kalahandi and Bolangir.

11. d In Karnataka, iron ore deposits occur in Sandur - Hospet area of Ballari district, Baba Budan hills and Kudremukh in Chikkamagaluru district and parts of Shivamogga, Chitradurg and Tumakuru districts.

12. a Odisha happens to be the largest producer of Bauxite. Kalahandi and Sambalpur are the leading producers. The other two areas which have been increasing their production are Bolangir and Koraput.

13. d Copper is an indispensable metal in the electrical industry for making wires, electric motors, transformers and generators. It isalloyable, malleable and ductile. It is also mixed with gold to provide strength to jewellery.

14. a Coal lie in Jharkhand-Bengal coal belt and the important coal fields in this region are Raniganj, Jharia, Bokaro, Giridih, Karanpura. Jharia is the largest coal field followed by Raniganj.

15. b Mumbai High which lies 160 km off Mumbai was discovered in 1973 and production commenced in 1976.

16. a Oil exploration and production was systematically taken up after the Oil and Natural Gas Commission was set up in 1956.

17. b In Assam, Digboi, Naharkatiya and Moran are important oil producing areas.

18. d Important minerals used for the generation of nuclear energy are uranium and thorium.

19. d The important nuclear power projects are Tarapur (Maharashtra), Rawatbhata near Kota (Rajasthan), Kalpakkam (Tamil Nadu), Narora (Uttar Pradesh), Kaiga (Karnataka) and Kakarapara (Gujarat).

20. a In India, a geothermal energy plant has been commissioned at Manikaran in Himachal Pradesh.