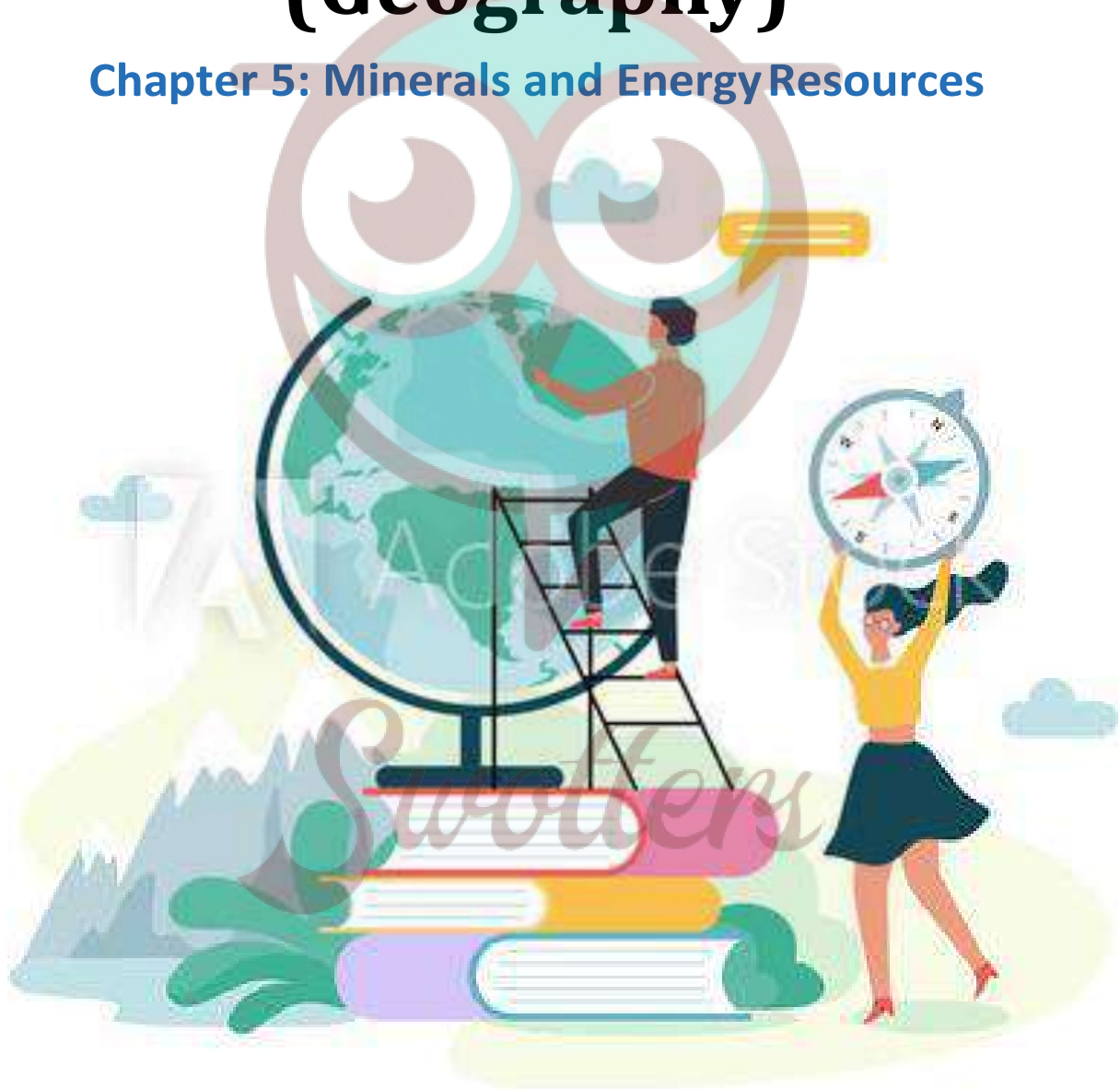


Social Studies

(Geography)

Chapter 5: Minerals and Energy Resources



Important Questions

Multiple Choice questions-

Question 1. The mineral used in the manufacture of steel is:

- (a) Copper
- (b) Lead
- (c) Magnesium
- (d) Manganese

Question 2. The state which is the largest producer of manganese is:

- (a) Gujarat
- (b) West Bengal
- (c) Bihar
- (d) Orissa

Question 3. The mines of Madhya Pradesh produce 52 percent of India's copper.

- (a) Kolaghat
- (b) Khetri
- (c) Balaghat
- (d) Singbhum

Question 4. The most important bauxite deposits in the state of Orissa are in district.

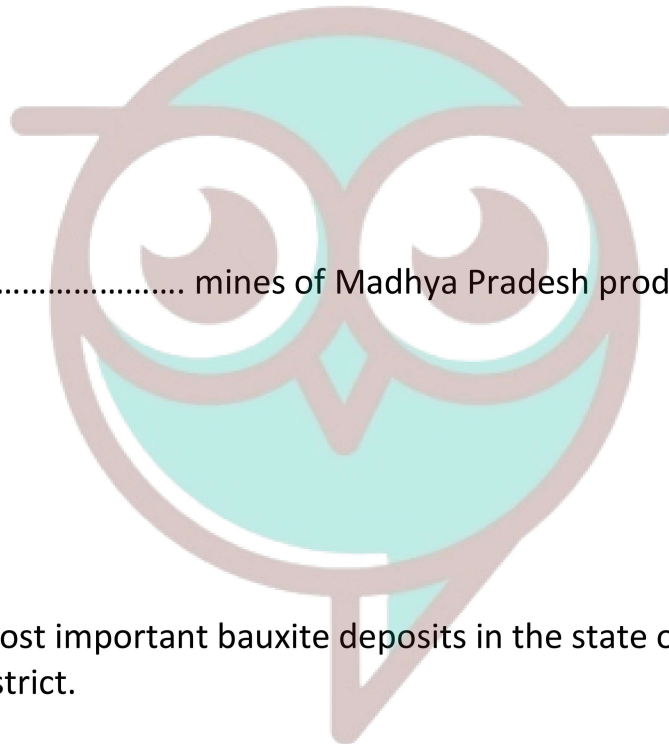
- (a) Singbhum
- (b) Khetri
- (c) Balaghat
- (d) Koraput

Question 5. The mineral made up of a series of plates or leaves in:

- (a) Bauxite
- (b) Lead
- (c) Copper
- (d) Mica

Question 6. Nellore mica belt is in the state of:

- (a) Orrisa
- (b) Bihar
- (c) Madhya Pradesh



Swotters

(d) Andhra Pradesh

Question 7. The basic raw material for the cement industry and essential for smelting iron ore in the blast furnace is:

(a) Iron

(b) Mica

(c) Limestone

(d) Sodium chloride

Question 8. Low grade brown coal is known as:

(a) Bituminous

(b) Anthracite

(c) Lignite

(d) None of the above

Question 9. The highest quality hard coal is:

(a) Bituminous

(b) Anthracite

(c) Lignite

(d) None of the above

Question 10. Tertiary coals occur in which of the following:

(a) Orissa, West Bengal and Bihar

(b) Punjab, Haryana, Jammu and Kashmir

(c) Meghalaya, Assam, Arunachal Pradesh and Nagaland

(d) Gujarat, Kerala, Tamil Nadu and Karnataka

Question 11. About percent of India's petroleum production is from Mumbai High.

(a) 63

(b) 73

(c) 83

(d) 93

Question 12. Large reserves of natural gas have been discovered in the:

(a) Ganga – Godavari Basin

(b) Ganga – Yamuna Basi

(c) Ganga – Brahmaputra Basin

(d) Krishna – Godavari Basin

Question 13. The number of thermal power plants in India is:

- (a) 110
- (b) 210
- (c) 310
- (d) 410

Question 14. Nuclear energy is obtained by altering the:

- (a) Structure of atoms
- (b) Structure of electrons
- (c) Structure of protons
- (d) None of the above

Question 15. The largest solar plant of India is located at:

- (a) Madhapur
- (b) Khetri
- (c) Kolhapur
- (d) Jaisalmer

Very Short-

Question 1. State some products/things we use that are made of metals.

Question 2. Name the minerals which do the cleaning work.

Question 3. Which rock consists of single mineral only ? [CBSE 2015]

Question 4. What is a mineral ?

Question 5. How do Geographers study minerals ?

Question 6. What is the interest of a geologists in minerals ?

Question 7. State some of the non-metallic minerals.

Question 8. Give some examples of energy minerals.

Question 9. What type of mineral is copper ?

Question 10. Where are minerals found ?

Short Questions-

1. How minerals are formed in sedimentary rocks? Name any two mineral formed due to evaporation especially in arid region.

2. Explain with an example that aluminum was widely used by the emperors of France.

3. Name any one rock mineral. Write about its formation. Name the industry in which it is used?

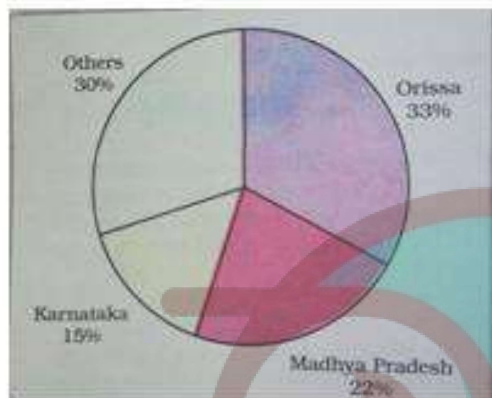
4. Can you illustrate some suggestions to conserve minerals?

5. Study the given chart carefully and answer the following questions:

A. Which state is the largest producer of manganese in India?

B. What is the use of manganese?

C. What is the share of Madhya Pradesh in the production of manganese ore?



6. Toothpaste is a combination of various Minerals". Support the statement with suitable examples.

7. What is the difference in approach of Geographers and Geologists in the study of mineral resources?

8. Distinguish between metallic Minerals and Non Metallic Minerals.

9. How do decomposition and weathering influence formation of minerals? Name a mineral formed due to decomposition and weathering?

10. What is the contribution of coal in the installed capacity of electricity? Why is the share of coal continuing to be highest?

Long Questions-

1. What are Non-Conventional Sources of Energy? Why do they have a bright future in India.

2. Write a short note on Bauxite, its formation, features and distribution in India.

3. Why there is a need of conservation of minerals?

4. How would you classify the types of coal depending on the degrees of compression?

5. Name the non metallic mineral, which can be easily splits into thin sheets. What are the properties of this mineral and it is found in which areas?

6. Explain the different forms of occurrence of minerals.

7. Distinguish between conventional and non conventional sources of energy.

8. Explain any five types of non-conventional sources of energy developed in India.

Assertion and Reason Questions:

1. In these questions, a statement of assertion followed by a statement of reason is given. Choose the correct answer out of the following choices.

- a) Assertion and reason both are correct statements and reason is correct explanation for assertion.
- b) Assertion and reason both are correct statements but reason is not correct explanation for assertion.
- c) Assertion is correct statement, but reason is wrong statement.
- d) Both assertion and reason are wrong statements.

Assertion (A): Uses of iron brought a radical change in human life.

Reason (R): Different kinds of tools were invented by using minerals.

1.

2. In these questions, a statement of assertion followed by a statement of reason is given. Choose the correct answer out of the following choices.

- a) Assertion and reason both are correct statements and reason is correct explanation for assertion.
- b) Assertion and reason both are correct statements but reason is not correct explanation for assertion.
- c) Assertion is correct statement but reason is wrong statement.
- d) Both assertion and reason are wrong statements.

Assertion (A): Mining activity is often called a “Killer Industry”.

Reason (R): Mining helps in agriculture.

Assertion and Reason Answers:

Cash Study Questions:

1. Energy is required for all activities. It is needed to cook, to provide light and heat, to propel vehicles and to drive machinery in industries. Energy can be generated from fuel minerals like coal, petroleum, natural gas, uranium, and electricity. Energy resources can be classified as conventional and non-conventional sources. Conventional sources include firewood, cattle dung cake, coal, petroleum, natural gas, and electricity (both hydel and thermal). Non-conventional sources include solar, wind, tidal, geothermal, biogas, and atomic energy. Firewood and cattle dung cake is most common in rural India. According to one estimate, more than 70 percent of energy requirement in rural households is met by these two; continuation of these is increasingly becoming difficult due to decreasing forest area. Moreover, using dung cake

too is being discouraged because it consumes most valuable manure which could be used in agriculture.

- i. **Which of the following statement is true about conventional energy resources?**
 - (a) They cause minimum pollution.
 - (b) They are available in limited quantity.
 - (c) Cattle dung is the most used energy in the world.
 - (d) There are sufficient reserves of conventional energy sources.
- ii. **Which of the following resources does not generate energy?**
 - (a) Coal
 - (b) Fuel
 - (c) Natural gas
 - (d) None of the above
- iii. **Which of the following energy is the non-conventional source of energy?**
 - (a) Firewood
 - (b) Tidal energy
 - (c) Natural gas
 - (d) Petroleum
- iv. **Firewood and cattle dung cake are most common energy in rural India because**
 - (a) They are easily available
 - (b) They are non-conventional
 - (c) They produces high energy
 - (d) None of the above
- v. **How India can reduce its dependence over countries for energy?**
 - (a) Promoting non-conventional source of energy
 - (b) Promoting efficient use of resources
 - (c) Both (a) and (b)
 - (d) None of the above

Map Question:

1. On an outline map of India, locate and label the following power plants with appropriate symbols:
 - Thermal: Namrup, Talcher, Singrauli, Harduaganj, Korba, Uran, Ramagundam, Vijayawada, Tuticorin.
 - Nuclear: Narora, Rawat Bhata, Kakrapara, Tarapur, Kaiga, Kalpakkam

MCQ Answers-

1. Answer: (d) Manganese

2. Answer: (d) Orissa
3. Answer: (c) Balaghat
4. Answer: (d) Koraput
5. Answer: (d) Mica
6. Answer: (d) Andhra Pradesh
7. Answer: (c) Limestone
8. Answer: (c) Lignite
9. Answer: (b) Anthracite
10. Answer: (c) Meghalaya, Assam, Arunachal Pradesh and Nagaland
11. Answer: (a) 63
12. Answer: (d) Krishna – Godavari Basin
13. Answer: (c) 310
14. Answer: (a) Structure of atoms
15. Answer: (a) Madhapur

Very Short Answers-

1. Answer: Railway lines, a tiny pin, machinery, cars etc. are all made of metals.
2. Answer: Silica, oxide and phosphate minerals do the cleaning work.
3. Answer: Limestone.
4. Answer: Mineral is a “homogenous” naturally occurring substance with a definable internal structure.
5. Answer: Geographers study minerals as part of the earth’s crust for a better understanding of landforms.
6. Answer: A geologist is interested in the formation of minerals, their age and physical and chemical composition.
7. Answer: Non-metallic minerals are mica, salt, potash, sulphur, granite, limestone, marble sand stone etc.
8. Answer: Coal, petroleum and natural gas are energy minerals.
9. Answer: Copper is a metallic mineral.
10. Answer: Minerals are found in ores.

Short Answers-

1. Ans.

- A. In sedimentary rocks a number of minerals occur in beds and layers.
- B. They have been formed as a result of deposition, accumulation and

concentration in horizontal strata.

C. Coal and some forms of iron ore have been concentrated as a result of long periods under great heat and pressure.

D. Another group of sedimentary minerals include gypsum, potash salt and sodium salt. These are formed as a result of evaporation especially in arid region.

2. Ans.

A. After the discovery of aluminium Emperor Napoleon III wore buttons and hooks on his clothes made of aluminium.

B. Food was served to his more illustrious guests in aluminium utensils and the less honorable ones were served in gold and silver utensils.

C. Thirty years after this incident aluminium bowls were most common with the beggars in Paris.

3. Ans.

A. Limestone is a rock mineral.

B. It is found in association with rocks composed of calcium carbonate or calcium and magnesium carbonates.

C. It is found in sedimentary rocks of most geological formations.

D. Limestone is the basic raw material for cement industry and essential for smelting iron ore in the blast furnaces.

4. Ans.

A. A concerted effort has to be made in order to use our mineral resources in a planned and sustainable manner.

B. Improved technologies need to be constantly evolved to allow use of low grade ores at low costs.

C. Recycling of metals, using scrap metals and other substitutes are steps in conserving our minerals resources for future.

5. Ans.

A. Odisha is the largest producer of manganese ore in India.

B. Manganese is mainly used in the manufacture of steel.

C. About 22%.

6. Ans. Yes, toothpaste is a combination of so many minerals. Toothpaste cleans our teeth. Abrasive minerals like silica, limestone, aluminum oxide and various phosphate minerals do the cleaning. Fluoride which is used to reduce cavities, come from a mineral fluoride. Most toothpaste is made white, with titanium oxide, which comes from minerals called rutile, ilmenite and anatase. The sparkle in some toothpaste comes from mica. The toothbrush and tube containing the paste are made of plastics from petroleum.

7. Ans. Geographers study minerals as part of the earth's crust for a better understanding of land reforms. The Distribution of minerals resources and associated economic activities are interest to geographers.

Geologists, however, is interested in the formation of minerals, their age and physical and chemical composition.

8. Ans. Metallic Minerals

1. Minerals from which metals are extracted.
2. They can be pressed in to wires or sheets.
3. Iron gold silver are metallic minerals

Non-Metallic Minerals

1. Minerals consist of non-metals.
2. They cannot be pressed in to wires or sheets
3. Clay, Sulphur, coal, potash are all non metallic minerals.

9. Ans.

- A. This type of formation involves the decomposition of surface rocks under the effect of pressure, temperature and humidity.
- B. Due to weathering effects of wind and water the soluble constituents, leaving a residual mass of weathered material containing ores.
- C. Bauxite is formed this way.

10. Ans.

- A. 62% is the contribution of coal in the installed capacity of electricity.
- B. The share of coal is continuing to be highest because of the following facts.
 1. India has a huge resource of coal of different kinds, such as anthracite, bituminous, lignite and peat.
 2. The potential of India in the field of hydel power is quite high but only one sixth has been derived developed.
 3. Electricity produced by nuclear plants is only in the initial stages. This way is not properly developed.

Long Answers-

1. Ans. Resources which we can use again and again and which are renewable in nature are non-conventional resources of energy. Due to the following reasons they have bright future in India.

Resources which we can use again and again and which are renewable in nature are non-conventional resources of energy. Due to the following reasons they have bright future in India.

- A. India is blessed with an abundance of sunlight, water, wind and bio mass.

B. India is tropical country. It has enormous possibilities of tapping solar energy.

C. India now ranks a wind super power in the world. States like Tamil Nadu, Andhra Pradesh, Karnataka, Gujarat, Kerala, Maharashtra, and Lakshadweep have important wind farms

D. In India the Gulf of Kichchh, provides ideal conditions for utilizing tidal energy.

E. There are several hundred hot spot springs in India, which could be used to generate Geo Thermal Energy.

2. Ans. Bauxite is a clay-like substance from which alumina and later aluminium is obtained. Aluminium is an important metal because it combines the strength of metals such as iron, with extreme lightness and also with good conductivity and great malleable ability.

Formation: Bauxite deposits are formed by the decomposition of a wide variety of rocks rich in aluminium silicates.

Distribution:

A. It is found in the Amarkantak Plateau, Maikal Hills and the plateau region of Bilaspur-Katni.

B. Odisha is the largest bauxite producing state in India.

C. Panchpatmali deposits in Koraput District are the most important bauxite deposits in the state.

D. 45% of the country's total production in 2000-01 was in Odisha.

3. Ans.

A. The total Volume of workable mineral deposits in an insignificant fraction i.e. one percent of the earth's crust.

B. We are rapidly consuming mineral resources that required millions of years to be created and concentrated.

C. The geological processes of mineral formation are so slow that the rates of replenishment are infinitely small in comparison to the present rates of consumption.

D. Mineral resources are finite and non renewable.

E. Mining of minerals causes great threat to the environment and health of the human beings. Due to the above discussed reasons it is necessary to conserve the minerals and use them in a judicious way.

4. Ans. Following are the types of coal on the degree of compression:

A. Peat: Decaying plants in swamps produced peat, which has a low carbon and high moisture contents. It has very heating capacity.

B. Lignite: Lignite is a low grade brown coal, which is soft with high moisture

content. The principal lignite reserves are in Neyveli in Tamil Nadu and used for generation of electricity.

C. Bituminous: Coal that has been buried deep and subjected to increased temperature is bituminous coal. It is the most popular coal in commercial use. Metallurgical coal is high grade bituminous coal which has a special value for smelting iron in blast furnace.

D. Anthracite: It is highest quality hard coal.

5. Ans. Mica is the mineral made up of a series of plates or leaves. It splits easily into thin sheets.

Properties:

A. Mica sheets can be so thin that a thousand can be layered in to mica sheet of a few centimeters high.

B. Mica can be clear, black, green, red, yellow or brown, Due to its excellent di-electric strength, low power loss factor, insulating properties and resistance to high voltage, mica is one of the most indispensable minerals used in electric and electronic industries.

Mica producing areas:

A. Mica is found in the northern edge of the Chota Nagpur Plateau. Koderma Gaya- Hazaribagh belt of Jharkhand is the leading producers.

B. In Rajasthan the major mica producing area is around Ajmer.

C. Nellore mica belt of Andhra Pradesh is also an important producer in the country.

6. Ans.

A. Occurrence of Minerals in Igneous and Metamorphic rocks: In igneous and metamorphic rocks minerals may occur in cracks, crevices, faults and joints. The smaller occurrence is called veins and the larger are called lodes. Major metallic minerals like tin, copper, zinc and lead etc are obtained from veins and lodes.

B. Occurrence of minerals in sedimentary rocks: In sedimentary rocks a number of minerals occur in beds and layers. They have been formed as a result of deposition, accumulation and concentration in horizontal strata. Coal and some forms of iron ore have been concentrated as a result of long periods.

C. Occurrence of minerals through Decomposition of surface rocks: Another mode of formation involves the decomposition of surface rocks, and the removal of soluble constituents, leaving a residual mass of weathered material containing ores. Bauxite is formed this way.

D. Alluvial deposits: Certain minerals may occur as alluvial deposits in sands of valley floors and the base of hills. These deposits are called placer deposits.

E. Minerals in ocean water and ocean beds: The ocean water contains vast quantities of minerals. Common salt, magnesium and bromine are largely derived from ocean water. The ocean beds too are rich in manganese nodules

7. Ans.

Conventional	Non- Conventional
1. Conventional sources of energy are non renewable sources of energy.	1. Non-conventional sources of energy are renewable sources of energy.
2. These sources get depleted with its use.	2. These resources can be used again and again.
3. These are traditional sources of energy.	3. These are recently developed sources of energy.
4. These causes large scale pollution.	4. These are environment friendly resources.
5. For example : Coal, petroleum, diesel, etc.	5. For example: Solar energy, wind energy, tidal energy etc.

8. Ans.

A. Solar energy: India is a tropical country. It has enormous possibilities of tapping solar energy. Photovoltaic technology converts sunlight directly into electricity. Solar energy is fast becoming popular in rural and remote areas. The largest solar plant of India is located at Madhapur, near Bhuj, where solar energy is used to sterilize milk cans.

B. Wind power: India now ranks as a wind super power in the world. The largest wind farm cluster is located in Tamil Nadu from Nagarcoil to Madurai.

C. Bio Gas: Shrubs, farm waste, animal and human waste are used to produce bio gas for domestic purpose in rural area. Decomposition of organic matter yields gas, which has higher thermal efficiency in comparison to kerosene, dung cake and charcoal.

D. Tidal energy: Oceanic tides can be used to generate electricity. Floodgate dams are built across inlet. During high tide water flows into the inlet and gets trapped when the gate is closed. From that stored water electricity is generated.

E. Geo thermal Energy: Geothermal energy refers to the heat and electricity produced by using the heat from the interior of the earth

Case Study Answer:

- (b) They are available in limited quantity.
 - (d) None of the above.
 - (b) Tidal energy

iv (a) They are easily available

v (c) Both (a) and (b)

Map answer:

1.

