MINERAL AND ENERGY RESOURCES

Q.1 How many percent *minerals* intake represents our total intake of nutrients –
(a) 0.3
(b) 3.0
(c) 0.5
(d) 5.0
Q.2 Magnetite is the finest iron or with a new higher content iron- up to –
(a) 60%
(b) 70%
(c) 80%
(d) 90%
Q.3 State which is the largest producer of manganese is –
(a) Karnataka
(b) Jharkhand
(c) Madhya Pradesh
(d) Orissa
Q.4 Which is the oldest oil producing state in India:
(a) Gujarat
(b) Maharashtra
(c) Assam
(d) None of these
Q.5 India now ranks as a super power in the world, that is:
(a) Wind Super Power
(b) Solar Super Power
(c) Hydel superpower
(d) Tidal Super Power

Answer:

1.(a) 2.(b) 3.(d) 4.(c) 5.(a)

A naturally occurring substance that has a definite chemical composition is a mineral
compound
metal
rock

The following is (are) non-metallic mineral(s)

Limestone
Mica
Gypsum
All of the above

Minerals can be extracted by
Mining
Drilling
Quarrying
All of the above

Minerals that lie at shallow depths are taken out by removing the surface layer; this is known as
open-cast mining
Shaft mining
Drilling
All of the above

Non-metallic minerals are found in
Igneous rocks
Metamorphic rocks
Sedimentary rocks
All of the above

The largest producer of mica in the world is
Australia
India
China
Canada

Kolar in _____ has deposits of gold in India.
Tamil Nadu
Kerala
Andhra Pradesh
Karnataka

'Bauxite' is an ore of
Iron
Copper
Aluminium

Mica

The following is called 'Black gold'.
Petroleum
Coal
Bauxite
None of the above

Bio-gas is primarily a mixture of
Methane and carbon dioxide
Methane and Oxygen
Propane and carbon dioxide
Propane and oxygen

Which one of the following is the softest mineral ?
Magnetite B. Limestone C.Talc D. Mica

In which of the following the mineral deposits are called placer deposits ?
A. Occurrence of copper in the cracks of igneous rocks
B Occurrence of gypsum found in the arid regions
C.Bauxite formed by the decomposition of surface rocks
D..Occurrence of silver brought by river at the base of a hill

Which one of the following is not a metallic mineral ?
A. Sulphur, B. Lead C. Bauxite D. Nickel

Which one of the following is a Ferrous mineral ?
A. Manganese B. Copper C. Platinum D. Granite

Which of the following mineral is found in Khetri mines ?
A. Manganese B. Coal C. Copper D. Iron

Which is the leading producer of Copper ?
A. Rajasthan B. Jharkhand C. Madhya Pradesh D. Karnataka

Which one of the following is the iron ore mine of Karnataka ?
A. Bailadila B. Durg C. Mayur Bhanj D. Kudremukh

From which one of the following mine iron ore exported through Vishakhapatnam port
A. Bailadila B. Kudremukh C. Bellary C. Badampahar

Which one of the following is not an ore of iron?
A . Bauxite B.Hematite C. Magnetite D. Iron pyrite

Which of the following mineral is found in Koderma, Gaya ,Nellore ?
A. Bauxite B. Copper C. Limestone D. Mica

Which one of the following state is the leading producer of Bauxite ?
Rajasthan B. Jharkhand C. Madhya Pradesh D. Orissa

Balaghat mine is an important mine of ----------
A. . Rajasthan B. Jharkhand C. Madhya Pradesh D. Orissa

Kudremukh is an important ---------- mine
A. copper mine B, Bauxite mine C Iron- ore mine D Manganese mine

Minerals found in the crevices of igneous or metamorphic rocks in small quantities are called as
A. Veins B lodes C. placer deposits D. All of the above

Which is the leading producer of manganese?
A. Rajasthan B. Jharkhand C. Madhya Pradesh D. Orissa

Khetri is important for its ----------
A. Iron –ore mine B. Lignite mine C. Mica mine D. Copper mine

Which one of the following mineral is an important raw material for the cement industry?
A. Mica B. Bauxite C. Manganese D. Limestone

In Which of the following manufacturing manganese used?
A. Steel B. Paints C. Insecticides D. All of the above

Where is Bailadila mine located?
A. Madhya Pradesh B. Chhattisgarh C. Jharkhand D. Orissa

Which one of the following is not a metallic mineral?

A. Sulphur, B. Lead C. Bauxite D. Nickel

Question - Answers of Minerals and Energy Resources

Q.1 "Discovery and use of iron brought a radical change in human life" prove it with three examples.

Ans: Discovery and use of iron really brought a radical change in human life. The examples are as follows:

a) Revolution in agriculture-different type of tools were invented like axe, hook, plough etc.

b) Revolution in industry-different tools and machines like spinning.

c) Revolution in transportation- bullock-cart, ships, boats etc were invented.

Q.2 Describe the various forms in which minerals occur.

Ans: Minerals occur in the following forms:

a) In igneous and metamorphic rocks (cracks, crevice, faults or joints)

b) In beds or layers of sedimentary rocks due to deposition, accumulation and concentration.

c) Decomposition of surface rocks.

d) Alluvial deposits in sands of valleys and the base of hills as " Placer Deposits"

Q.3 Why is mining activity often called a "Killer Industry". Give three reasons.

Ans: The three reasons are as follows:

a) High risk is involved.

b) Due to poisonous fumes, mines are vulnerable to workers for pulmonary diseases.

c) Risk of collapsing mines roofs, and fires in coal mines.

d) Water sources get contaminated

Q.4 Give three reasons in the favour of use of 'Atomic energy'.

Ans: The three reasons in the favour of use of 'Atomic energy' are as follows:

a) Coal and natural oil are exhaustible.

b) Nuclear power plants are easy to handle.

c) Most developed countries are utilising this energy successfully.

d) It can be useful in fields of medicines and agriculture.

e) Hydel energy is not satisfactory due to environmental issues.

Q.5 Why does solar energy in Rajasthan have greater potential as non–conventional source of energy?

Ans: The solar energy in Rajasthan have greater potential as non-conventional source of energy because it has:

a) Hot and dry region
b) Clear sky almost whole year
c) Cheaper installation
d) Renewable and pollution free energy source.
e) Government motivation

LONG ANSWER TYPE QUESTIONS

Q.1 What are the Petroleum producing areas in India. Explain.

Ans . Most of the petroleum producing areas in India are associated with anticlines and fault traps in the rock formations of the tertiary age. In the region folding, anticlines or domes, it occurs where oil is trapped in the crest of the uphold. Petroleum is also found in fault traps between porous rocks. Major petroleum producing area of India are …

1) ASSAM- Digboi, Naharkatia, Moran-Hugrijan, Namdang region
2) GUJRAT- Ankeleshwar, Lunez, Navgan
3) MUMBAI HIGH
4) Godavari – Mahanadi basin

Q2: Distinguish between Natural Gas and Bio Gas?

Ans: **NATURAL GAS**

• It is a mixture of combustible gaseous hydrocarbons occurring in the rocks of earth crust.
• This is commercial energy.
• It is used as raw material in the petrochemicals.
• It is transported from one place to another through pipeline.
• Mostly used in urban areas.

BIO GAS

• It is derived by decomposition of waste of animals and plants with the help of microorganism in presence of water.
• Non commercial energy
• It is produced in tanks
• It is found in rural areas

Q.3 What are Non - Conventional sources of energy? Discuss two sources of such types of energy.

Ans: Sources of energy which are renewable, eco-friendly and newer one are called non conventional sources of energy i.e. wind energy, geothermal energy, tidal energy etc.

GEOTHERMAL ENERGY: Geothermal energy refers to the heat and electricity produced by using the heat from the interior of the earth. Where the geothermal gradient is high , high temperature is found at shallow depth . There are several hot springs in India which could be used to generate electricity. Two projects, one is MANIKARAN in Himachal and second in PUGA VALLEY in Ladakh have been set up in India to harness Geothermal energy.

TIDAL ENERGY: Oceanic tides can be used to generate electricity .During high tides water flows into the inlet and get trapped when it is closed. After the fall of tide the water flows back to the sea via pipe lines that carry it through power generating turbines. In India gulf of Kutch provides ideal conditions for tidal energy.

Q.4 India now ranks as a "WIND SUPER POWER" in the world. Why?

Ans: The reasons are:

• India gets advantage of trade winds, westerlies and monsoon winds.

• Wind energy is completely pollution free and non exhaustible that's why it becomes popular.

• India has an ambitious program to install 250 wind driven turbines with total capacity of 45 mega watts spread over 12 suitable locations.

• India's potential wind power generation is of 50000 megawatts of which ¼ can be easily harnessed.

• Rajasthan, Gujarat, Maharashtra, Karnataka and Tamil Nadu have favourable conditions for wind energy. Wind power plant at LAMBA in Gujarat, is the largest in Asia.

Q.5 How can we conserve energy resources in India? Explain.

Ans : Following efforts can be made to conserve energy resources in India:

i) Using public transport instead of individual vehicles.

ii) Switching off electricity when not in use.

iii) Using power saving devices.

iv) More and more use of non conventional source of energy as they are renewable and eco-friendly.

v) In automobiles electrical motors should be introduced.

vi) Intensified exploration and research of new sources of energy.

Q.6 What are minerals? How are they classified?
Ans. Minerals are natural resources which are obtained from rocks. Geologists define a mineral as a “homogeneous, naturally occurring substance with a definable internal structure”. They are normally found in solid, liquid and gaseous states. They have a definite chemical composition and crystalline structure.
A particular mineral that will be formed from a single or certain combination of elements depends upon the physical and chemical conditions under which the material forms. Minerals are classified into metallic and non-metallic minerals and energy resources.

Q.7 How are minerals formed in ingeous and metamorphic rocks?
Ans. In igneous and metamorphic rocks minerals may occur in the cracks, crevices, faults or joints. The smaller occurances are called veins and the larger are called the lodes. In most cases, they are formed when minerals in liquid/molten and gaseous forms are forced upward through cavities towards the earth's surface. they cool and solidify as they rise.

Q.8 Why do we need to conserve mineral resources?
Ans. The total volume of workable mineral deposits is an insignificant fraction i.e. one percent of the earth's crust. We are rapidly consuming mineral resources that required million of years to be created and concentrated. 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.
Mineral resources are therefore, finite and non-renewable. Rich mineral deposits are our country's extremely valuable but short lived possessions. Continued extraction of ores leads to increasing costs as mineral extraction comes from greater depths along with decrease in quality.

Q.9 Describe the distribution of coal in India.
Ans. The major resources of metallurgical coal belong to the Gondwana age and are located mainly in the north eastern part of the peninsula. Rich reserves of coal are found in the Damodar Valley region in the states of West Bengal and Jharkhand. Raniganj in West Bengal and Jharia and Bokaro in Jharkhand are important coalfields. One third of the total production comes from here.
Coal is also found in the Godavari, Mahanadi, Son and Wardha valleys. Korba in Chhattisgarh, Singrauli and Penah-kanhan valley in Madhya Pradesh, Talcher in Orissa, Kamptee and Chandrapur in Maharashtra and Singareni of Andhra Pradesh are important coal mines. Tertiary coal occur in the north eastern states of Meghalaya, Assam, Arunachal Pradesh and Nagaland. Principal lignite reserves are found in Neyveli in Tamil Nadu.

Q.10 Why do you think that Solar energy has a bright future in India?
Ans: The western parts of India, especially the Thar desert's region, receive undisturbed sunshine for most parts of the year. This area has great potential for development of energy and can be utilised as the largest solar power house of India.
Solar energy is becoming fast popular in different parts of the country, especially in rural and remote areas. It can be used for cooking, heating of water, pumping, refrigeration, street lighting and room heating in cold areas. The largest solar plant of India is located at Madhapur near Bhuj in Gujarat. The solar energy is used to sterilise milk cans.

Minerals and Energy Resources

1 Mark Questions

1. Name the mineral which is used to reduce cavities in the toothpast
Ans . Fluoride

2. How the Geologists define Minerals?
Ans. According to them minerals are homogeneous, naturally accruing substances with a definable internal structure.

3. How much percent mineral intake represents of our total intake of nutrients?
Ans. 0.3 percent.

4. Sparkles in the toothpaste come from which mineral?
Ans. Mica

5. What are Rocks?
Ans. Rocks are combination of homogeneous substance called minerals.

6. What is Ore?
Ans. The term ore is used to describe an accumulation of any mineral mixed with other elements.

7. Name any two minerals which are found in veins and lodes.
Ans. Zinc and Lead

8. Name any two minerals which are found in beds and layers.
Ans. Coal and some forms of Iron

9. Define placer deposits?
Ans. These are the minerals which occur as alluvial deposits in sands of valley floors and the base of hills. These deposits are called placer deposits.

10. Which minerals are found in ocean water?
Ans. Salt and Magnesium

11. Name the mineral for which ocean beds are rich.
Ans. Manganese Nodules

12. Can you list any two metallic minerals which are obtained from veins and lodes?
Ans. Tin and copper

13. Name the places where coal mining is done by family members in the form of narrow tunnel.
Ans. Jowai and Cherapunjee

14. Which kind of rocks is found in western and eastern flanks of the peninsula?
Ans. Sedimentary Rocks

15. Which kind of mineral is found in Rajasthan?
Ans. Non ferrous

16. Name the districts of Odisha where Badampahar mines are found.
Ans. Mayurbhanj and Kendujhar

17. To which countries iron ore is exported from Vishakhapatnam port?
Ans. Japan and South Korea

18. Name the mineral which are found in Amarkantak Plateau.
Ans. Bauxite

19. Name the industries which are key users of natural gas.
Ans. Power and Fertilizer industry

20. With whose permission extraction is possible in India.
Ans. Government

21. How many percent minerals intake represents in our total intake of nutrients –
(a) 0.3
(b) 3.0
(c) 0.5
(d) 5.0
Ans (a) 0.3

22. Magnetite is the finest iron or with a new higher content iron- up to –
(a) 60%
(b) 70%

(c) 80%
(d) 90%
Ans b) 70%

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23. State which is the largest producer of Manganese is –
(a) Karnataka
(b) Jharkhand
(c) Madhya Pradesh
(d) Orissa
Ans (d) Orissa

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24. Which is the oldest oil producing state in India:
(a) Gujarat
(b) Maharashtra
(c)Assam
(d) none of this
Ans (c)Assam

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25. India now ranks as a super power in the world, that is:
(a) Wind Super Power
(b) Solar Super Power
(c) Hydel superpower
(d) Tidal Super Power
Ans (a) Wind Super Power

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26. "Discovery and use of iron brought a radical change in human life" prove it with three examples.
Ans. a) Revolution in agriculture-different type of tools invented like axe, hook, plough etc.
b) Revolution in industry-different tools and machines like spinning.
c) Revolution in transportation- bullock-cart, ships, boats etc.

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27. Describe the various forms in which minerals occur.
Ans. a) In igneous and metamorphic rocks (cracks, crevice, faults or joints)
b) In beds or layers of sedimentary rocks due to deposition, accumulation and concentration.
c) Decomposition of surface rocks
d) Alluvial deposits in sands of valleys and the base of hills as " Placer Deposits"

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28. Why is mining activity often called a "Killer Industry". Give three reasons.

Ans. a) High risk involved
b) Due to poisonous fumes, mines are vulnerable to workers for pulmonary diseases.
c) Risk of collapsing mines roofs, and fires in coal mines.
d) Water sources get contaminated

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29. Give three reasons in the favour of use of 'Atomic energy'.
Ans. a) Coal and natural oil are exhaustible.
b) Nuclear power plants are easy to handle
c) Most developed countries are utilizing this energy successfully
d) It can be useful in fields of medicines and agriculture
e) Hydel energy is not satisfactory due to environmental issues

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30. Why does solar energy in Rajasthan have greater potential as non – conventional source of energy?
Ans. a) Hot and dry region
b) Clear sky almost whole year
c) Cheaper installation
d) Renewable and pollution free energy source.
e) Government motivation

3 Mark Questions

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

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

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

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4. Can you illustrate some suggestions to conserve minerals?
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.

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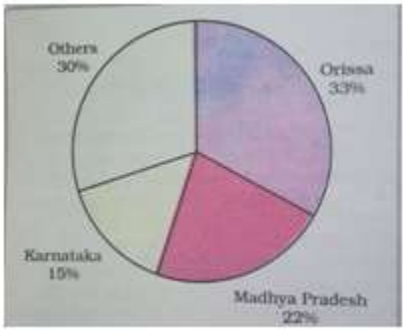
5. Study the given chart carefully and answer the following questions:
A. Which state is the largest producer of manganese in India?
B. What is the use of manganese?
C. What is the share of Madhya Pradesh in the production of manganese ore?



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%.

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6. A. Two features A and B are marked in the given political map of India. Identify these features with the help of the following information and write their correct names on the lines marked on the map.

1. A Coal Mine 2. Nuclear Power Plant
B. Locate and Labe Mangalore iron ore exporting port with appropriate symbols on the same map given for identification

Ans.

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

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

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9. Distinguish between metallic Minerals and Non Metallic Minerals.
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.

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

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

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12. Label the following in the given map of India.
i. Bauxite Mine, Madhya Pradesh
ii. Mica mine , Andhra Pradesh
DO IT YOURSELF

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13. Outline the uses of Energy? Explain the different sources of energy resources.
Ans. Uses: Energy is required for all activities. It is needed to cook, to provide light and heat, to propel vehicles and to drive machinery in Industry.
Sources of Energy:
a. Energy can be generated from non conventional sources include- solar energy, wind, tidal, geothermal, bio gas and atomic energy.
b. Energy is also generated from conventional sources include-firewood, cattle dung cake, coal, petroleum, natural gas and electricity both hydel and thermal.

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14. Why the use of fire wood and dung cake should be discouraged?
Ans. A. Fire wood and dung cattle dung cake are most common in rural India.
B. According to one estimate more than 70 per cent energy requirement in rural households is met by these two.
C. Continuation of these is increasingly becoming difficult due to decreasing forest area,
D. Moreover using dung cakes too is being discouraged because it consumes most valuable manure which could be used in agriculture.

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15. How would you classify the types of coal on the bases of geological ages?

Ans. A. Gondwana Coal Fields: The Gondwana coal fields are 250 million years of age. The major resources of gondwana coal which are metallurgical coal are located in Damodar valley (West-Bengal-Jharkhand). Jharia, Raniganj, Bokaro and important coal fields. The Godavari, Mahanadi, son and Wardha valleys also contain coal deposits.
B. Tertiary Coal Fields: The Tertiary coal fields are only 55 million years old. Tertiary coals occur in the north eastern states of Meghalaya, Assam, Arunachal Pradesh and Nagaland.

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16. Write a short note on HVJ Pipeline.
Ans. The HVJ pipeline is Hazira-Vijaipur-jagdishpur pipeline. It is 1700 km long. This pipeline links Mumbai High and Bassien with fertilizer, power and industrial complexes in western and northern India. This artery has provided an impetus to India's gas production. The power and fertilizer industries are the key users of natural gas. Use of Compressed Natural Gas for vehicles to replace liquid fuels is gaining wide popularity in the country.

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17. Label the following in the given map of India:
A. Khetri mine,
B. State largest producer of copper in India.
DO IT YOURSELF

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18. Locate and Label on the map given with appropriate symbols
1. Mica mine
2. Iron ore exporting port
B. Durg iron ore mine
DO IT YOURSELF

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19. Write about the formation of Tidal energy.
Ans. A. Oceanic tides are used to generate electricity.
B. Floodgates dames are built across inlet. During high tide water flows into the inlet and gets trapped when the gate is closed.
C. After the tide falls outside the flood gate, the water retained by the floodgate, the water retained by the floodgate flows back to the sea via pipes that carries it through a power-generating turbine.

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20. How the people of rural areas get benefited from the setting up of biogas plants?
Ans. A. Shurbs, farm waste, animal and human waste are used to produce biogas for domestic consumption in rural areas.

B. The plants using cattle dung are known as Gobar gas plants in rural areas.
C. Theses provide twin benefits to the farmer of rural areas in the form of energy.
D. Farmers also get improved quality of manure.
E. Bio gas is far the most efficient use of cattle dung.
F. It also prevents the loss of trees and manure due to burning of fuel wood and cow dung cakes.

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21. Explain the different uses of mineral oil.
Ans. A. Petroleum is a mineral oil is the next major energy source in India after coal.
B. It provides fuel for heat and lighting, lubricants for machinery and raw materials for a number of manufacturing industries.
C. Petroleum refineries act as a nodal industry foe synthetic textile, fertilizers and numerous chemical industries.

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22. How would you explain the occurrence of petroleum in India?
Ans. A. Most of the petroleum occurrences in India are associated with anticline and fault traps in the rock formations of the tertiary age.
B. In regions of folding, anticlines or domes, it occurs where oil is trapped in the crest of the up fold.
C. The oil bearing layer is a porous limestone or sand stone through which oil may flow.
D. The oil is prevented from rising or shrinking by intervening non-porous layers.

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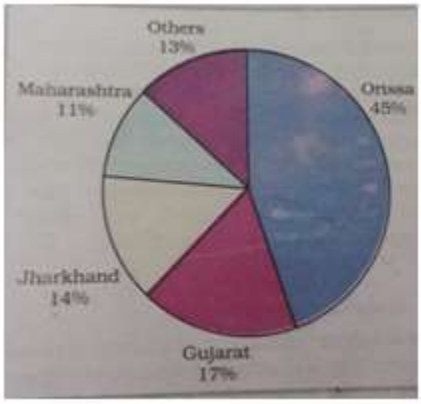
23. Study the given chart carefully and answer the following questions:
A. Which state is the largest producer of Bauxite in India?
B. Which mineral is derived from Bauxite?
C. What is the importance of aluminium?



Ans. A. Odisha
B. Aluminium

C. It combines the strength of iron but it is quite light in weight and has good conductivity and great malleability.

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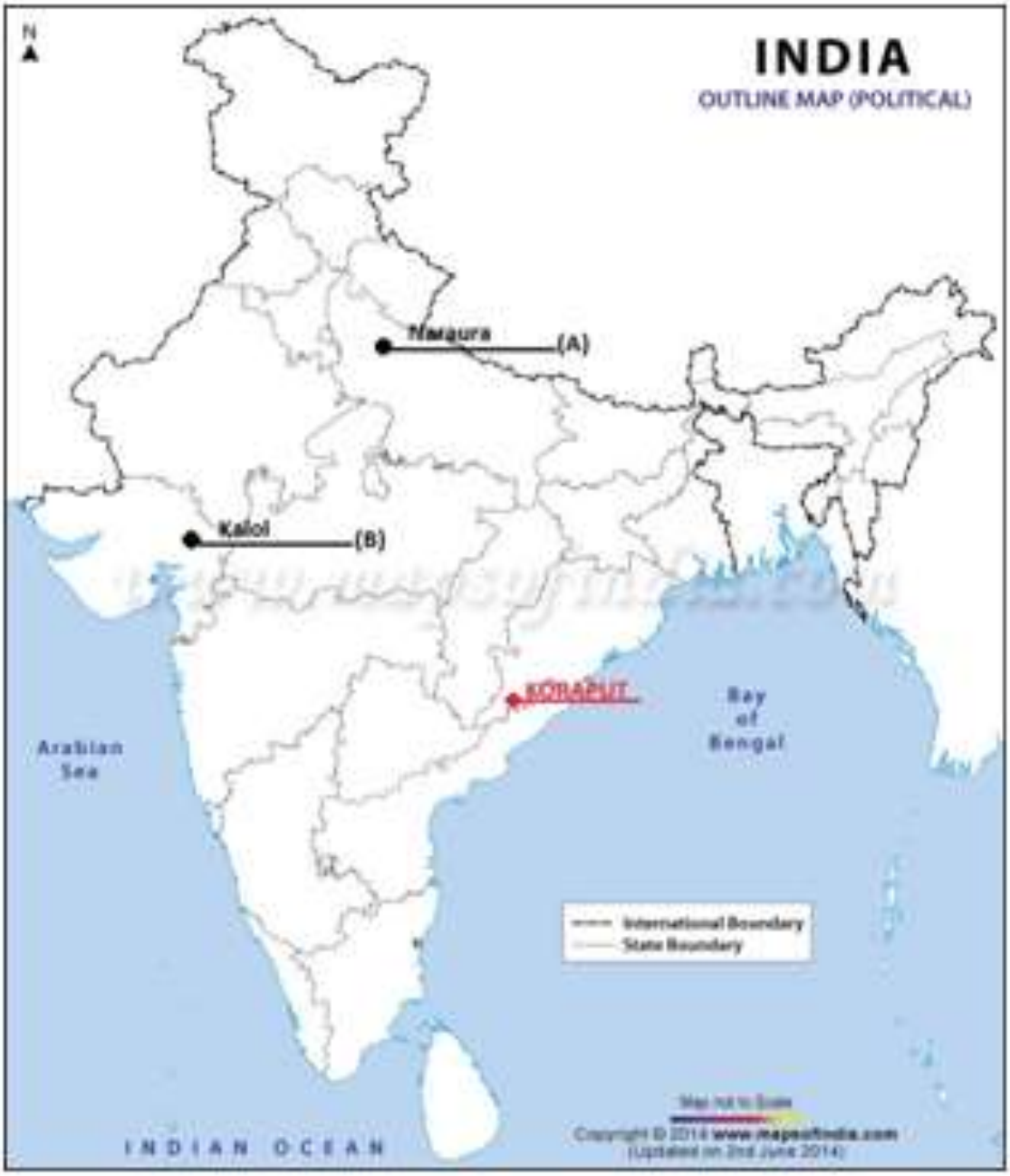
24. A. Two features A and B are marked in the given political map of India. Identify these features with the help of the following information and write their correct names on the lines marked on the map.

1. Nuclear Plant
2. Oil Field

B. Locate and Label Koraput Bauxite mine with appropriate symbols on the same map given for identification

Ans.



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25. Write any two features of natural gas. Why is it considered an environment friendly fuel?

Ans. A. Natural gas is an important clean energy resource found in association with or without petroleum.

B. It is used as a source of energy as well as an industrial raw material in the petrochemical industry.

C. Natural gas is considered an environment friendly fuel because of low carbon dioxide emission and is, therefore the fuel for the present country.

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26. Can you explain the natural gas reserves of India?
Ans. A. Large reserves of natural gas have been discovered in the Krishna-Godavari basin.
B. Along the west coast the reserves of supplemented by finds in the Gulf of Cambay.
C. Andaman and Nicobar islands are also important areas having large reserves of natural gas

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27. Name the type of energy whose per capita consumption is considered as an index of development. Explain the different ways by which this of energy resource is generated.
Ans. Electricity has such a wide range of application in today's world that, its per capita consumption is considered as an index of development. Electricity is generated mainly in two ways:
A. Hydro electricity: Hydro electricity is generated by running water which drives hydro turbines to generate hydro electricity. It is renewable resource of energy.
B. Thermal Power: It is generated by burning other fuels such as coal, petroleum and natural gas to drive turbines to produce thermal power.

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28. Write about the composition and formation of limestone. What are the uses of it?
Ans. Composition: Limestone is found in association with rocks composed of calcium carbonates or calcium and magnesium carbonate.
Formation: It is found in sedimentary rocks of most geological formation.
Uses: Limestone is the basic raw material for the cement industry and essential for iron ore in the blast furnace.

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29. Study the given chart carefully and answer the following questions:
A. What does this picture shows?
B. Which states of India have important wind farms?
C. Name the places which are well known for effective use of wind energy?

Ans. A. This pictures shows the wind mills, which help in generate wind energy.
B. Tamil Nadu followed Andhra Pradesh, Karnataka, Gujarat, Kerala, Maharashtra and Lakshadweep have important wind farms.
C. Nagarcoil and Jaisalmer are well known for effective use of wind energy in the country.

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30. A. Two features A and B are marked in the given political map of India. Identify these features with the help of the following information and write their correct names on the lines marked on the map.
1. Iron ore mine
2. Manganese mine
B. Locate and Label Ajmer Mica mine with appropriate symbols on the same map given for identification.


INDIA
OUTLINE MAP (POLITICAL)
N
(B)
(A)
Arabian Sea
Bay of Bengal
INDIAN OCEAN
International Boundary
State Boundary

Ans.

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31. What are the Petroleum producing areas in India. Explain.
Ans . Most of the petroleum producing areas in India are associated with anticlines and faults traps in the rock
formations of the tertiary age. In the region folding, anticlines or domes, it occurs where oil is trapped in the crest
of the uphold. Petroleum is also found in fault traps between porous rocks.
Major petroleum producing areas of India are …
1) ASSAM- Digboi, Naharkatia, Moran-Hugrijan, Namdang region
2) GUJRAT- Ankeleshwar, Lunez, Navgan
3) MUMBAI HIGH
4) Godavari – Mahanadi basin

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32. Distinguish between Natural Gas and Bio Gas.
Ans. NATURAL GAS

• It is a mixture of combustible gaseous hydrocarbons occurring in the rocks of earth crust.
• This is commercial energy.
• It is used as raw material in the petrochemicals.
• It is transported from one place to another through pipeline.
• Mostly used in urban areas.
• BIO GAS
• It is derived by decomposition of waste of animals and plants with the help of microorganism in presence of water.
• Non commercial energy
• It is produced in tanks
• It is found in rural areas

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33. What is Non – Conventional sources of energy? Discuss two sources of such types of energy.
Ans. Sources of energy which are renewable, eco-friendly and newer one are called non conventional sources of energy i.e. wind energy, geothermal energy, tidal energy etc.
GEOTHERMAL ENERGY:
Geothermal energy refers to the heat and electricity produced by using the heat from the interior of the earth. Where the geothermal gradient is high , high temperature is found at shallow depth . There are several hot springs in India which could be used to generate electricity. Two projects, one is MANIKARAN in Himachal and second in PUGA VALLEY in Ladakh has been set up in India to harness Geothermal energy.
TIDAL ENERGY:
Oceanic tides can be used to generate electricity .During high tides water flows into the inlet and get trapped when it is closed. After the fall of tide the water flows back to the sea via pipe lines that carry it through power generating turbines. In India gulf of Kutch provides ideal conditions for tidal energy.

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34. India now ranks as a “WIND SUPER POWER “in the world. Why?
Ans. • India gets advantage of trade winds, western lies and monsoon winds.
• Wind energy completely pollution free and non exhaustible that’s why it becomes popular.
• India has an ambitious program to install 250 wind driven turbines with total capacity of 45 mega watts spread over 12 suitable locations.
• India’s potential wind power generation is of 50000 megawatts of which ¼ can be easily harnessed.

• Rajasthan, Gujarat, Maharashtra, Karnataka and Tamil Nadu have favorable conditions for wind energy. Wind power plant at LAMBA in Gujarat, is the largest in Asia.

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35. How can we conserve energy resources in India? Explain.
Ans. Following efforts can be made to conserve energy resource in India:
i. Using public transport instead of individual vehicles.
ii. Switching of electricity when not in use.
iii. Using power saving devices.
iv. More and more use of non conventional source of energy as they are renewable and eco-friendly.
v. In automobiles electrical motors should be introduced.
vi. Intensified exploration and research of new sources of energy

5 Mark Questions

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

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

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

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4. How would you classify the types of coal depending on the degrees of compression?
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 foe smelting iron in blast furnace.
D. Anthracite: It is highest quality hard coal.

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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?

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- Hazaribhag 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.

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6. Explain the different forms of occurrence of minerals.
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

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

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

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9. Describe the importance of minerals in human life.
Ans. A. Minerals are indispensable part of our life. Almost everything we use, from a tiny pin towering building or a big ship, all are made from minerals.
B. The railway lines and the tarmac of the roads, our implements and machinery too are made from minerals.

C. Cars buses, trains, aero plans are manufactured form minerals and run on power resources derived from the earth.
D. In all stages of development, human beings have used minerals for their livelihood, decoration, festivities, religious and ceremonial rites.
E. Availability of the minerals helps in the economic development of the country.
F. Our food too contains minerals.

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10. Can you explain the different types of iron ores?
Ans. Following are the different types of Iron ores:
A. Magnetite: it is the finest iron ore with a very high content of iron up to 70 percent. It is excellent magnetic qualities, especially valuable in the electrical industry.
B. Hematite: Hematite is the most important industrial iron ore in terms of the quantity used, but has slightly lower iron content than magnetite. (50-60 percent).
C. Limonite: It has iron content of about 40-60 percent.
D. Siderite: It has content of iron between 40-50 percent.