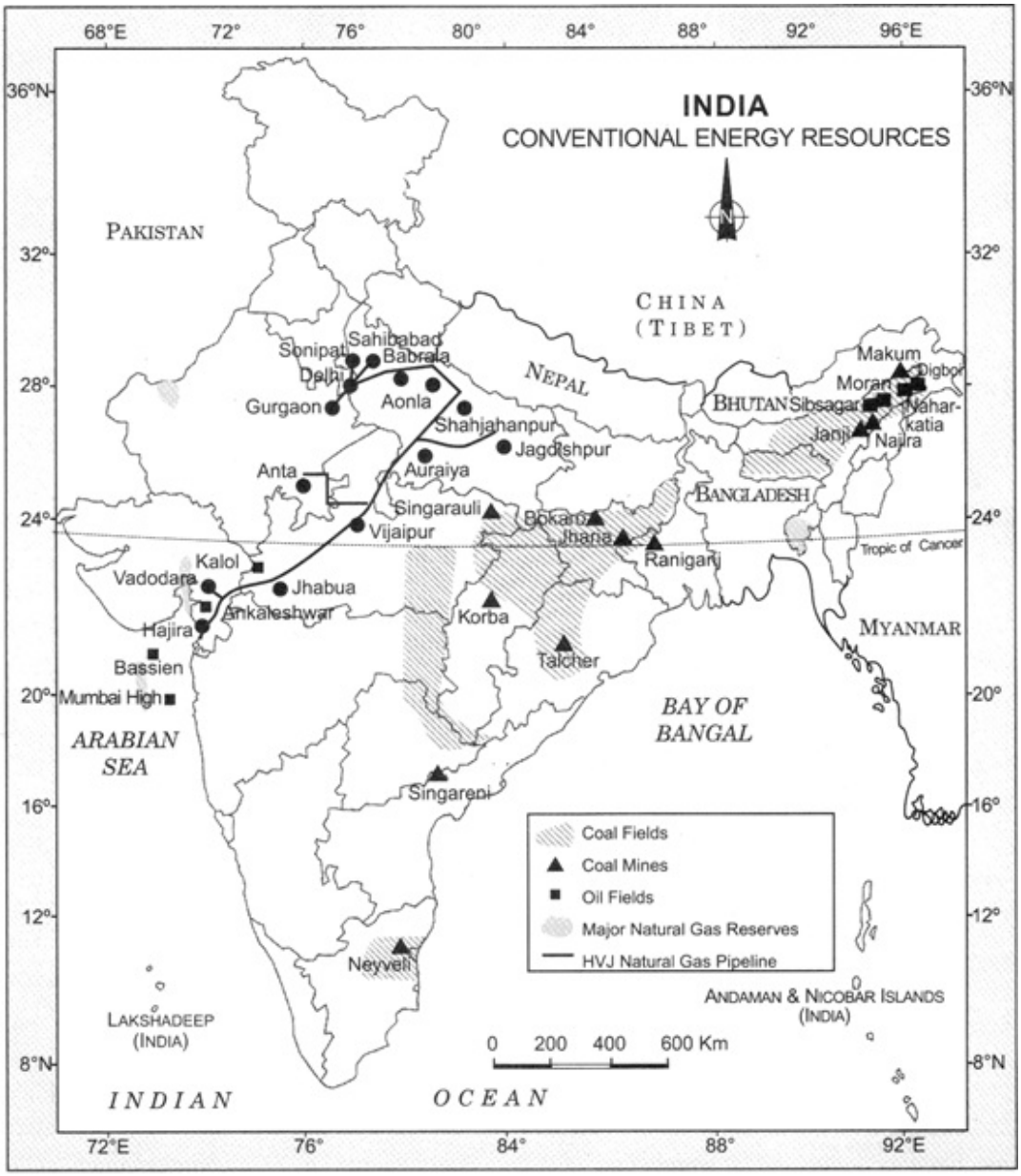
CBSE Test Paper 03

Ch-17 India Mineral and Energy Resources

1. Explain one reason for the import of petroleum and its products in large quantities in India.
2. Name the important belts of mineral reserves in India.
3. Give the distribution of petroleum reserves in India.
4. Which mineral is obtained from monazite and ilmenite in the beach sands?
5. State the advantages of Solar Energy?
6. Differentiate the coal on the basis of geological ages.
7. Explain any three features of mineral resources of India.
8. What are the advantages of bio-energy?
9. Nuclear energy is the hope of future in India. Give a few points.
10. Identify and name the important centres of natural gas pipelines located on the map of India.


INDIA
CONVENTIONAL ENERGY RESOURCES
PAKISTAN
CHINA (TIBET)
NEPAL
BHUTAN
BANGLADESH
MYANMAR
Sonipat
Sahibabad
Babrala
Delhi
Gurgaon
Aonla
Shahjahanpur
Jagdishpur
Anta
Auraiya
Singarauli
Vijaipur
Bokaro
Jhana
Ranigarj
Tropic of Cancer
Kalol
Vadodara
Jhabua
Ankaleshwar
Hajira
Bassien
Mumbai High
Korba
Talcher
Singareni
Neyveli
Makum
Digboi
Moran
Sibsagar
Nahar-katia
Janji
Najira
BAY OF BANGAL
ARABIAN SEA
INDIAN OCEAN
LAKSHADEEP (INDIA)
ANDAMAN & NICOBAR ISLANDS (INDIA)
Coal Fields
Coal Mines
Oil Fields
Major Natural Gas Reserves
HVJ Natural Gas Pipeline
0 200 400 600 Km
68°E
72°
76°
80°
84°
88°
92°
96°E
36°N
32°
28°
24°
20°
16°
12°
8°N

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Answer

1. The import of petroleum and its products in large quantities in India is due to Rising Industrialisation.
2. Minerals are generally concentrated in these broad belts in India.
    - North Eastern belt, Central Belt, Southern Belt, South Eastern Belt, North-western belt
3. i. Assam: Digboi, Naharkatia, Moran-Hugirijang, Rudrasagar-Lakwa, Surma Valley– The Badarpur, the Patharia and the Masimpur are the major oilfields.
   ii. Gujarat: Ankaleshwar, Khambat and Lewnage oilfield, Kalol oilfield, Mehsana oilfield, Navagaon oilfield, Kosamba oilfield, Sanand oilfield
   iii. Western offshore region: Bombay High, Bassein, Aliabet.
4. Thorium is mainly obtained from monazite and ilmenite in the beach sands.
5. Sun rays tapped in Photovoltaic cells can be converted into energy, known as solar energy. The western part of India has greater potential for the development of Solar energy in Gujarat and Rajasthan. Solar thermal technology has some relative advantages overall other non-renewable energy sources.
   a. It is cost-competitive, environment-friendly and easy to construct.
   b. Solar energy is 7 percent more effective than coal or oil-based plants and 10% more effective than nuclear plants.
   c. It is generally used more in appliances like heaters, crop dryers, cookers, etc.
6. i. Tertiary Deposits: It is about 55 million years old. Tertiary coals occur in Assam, Arunachal Pradesh, Meghalaya and Nagaland. It is extracted from Darangiri, Cherrapunji, Mewlong and Langrin (Meghalaya); Makum, Jaipur and Nazira in upper Assam, Namchik – Namphuk (Arunachal Pradesh) and Kalakot (Jammu and Kashmir).
   ii. Gondwana Deposits: It is about 200 million years old. The most important Gondwana coal fields of India are located in Damodar Valley. They lie in Jharkhand-Bengal coal belt and the important coal fields in this region are Raniganj, Jharia, Bokaro, Giridih, Karanpura.

7. Three features of mineral resources of India are as follows:
    i. Minerals Are Inorganic: Minerals don't belong to any class of organic compounds, which include substances such as carbohydrates, proteins and fats made by living things. Almost all known minerals come from inorganic processes -- activities that living things cannot carry out. A few minerals, such as pearls and the shells of some creatures, however, do originate from organic processes. All organic substances contain carbon. Inorganic substances also can contain carbon; but the carbon typically bonds with elements other than hydrogen and does not form long chains as it does in carbohydrates and fats.
    ii. Minerals are solid: Minerals cannot be liquids or gases; they exist only as solids, a state of matter that possesses a high amount of order. Ions, which are charged atoms, bond together to form minerals, which gives them a solid structure. Solids have a clearly defined volume and shape, and their molecules normally cannot be compressed any further. Their structures are rigid, meaning that the particles within the mineral don't move around. Solids can be crystalline or amorphous. Crystalline solids such as minerals have repeating patterns, whereas amorphous solids such as glass do not.
    iii. Crystalline structure : Minerals form crystals that contain repeated arrangements of atoms or ions. Each repeating part of a crystal is a unit cell which takes on different shapes depending on the size of the ion or atom and how it attracts other particles. Crystals usually take one of six common shapes. Cubic and tetrahedral forms predominate, although others exist less commonly. Minerals have crystalline structures that form in two ways. Magma or lava -- the hot, molten rock that comes from volcanoes -- can crystallize to form minerals. Minerals crystallize also form in the oceans when water deposits solutes in a certain area.
8. i. It emits little or no net greenhouse gas emissions;
    ii. It is a useful way of managing waste disposal for matter that would otherwise be debris;
    iii. It has well-established technology that’s able to deliver reliable energy;
    iv. It can be stored with minimal energy loss;
    v. It is plentiful wherever there are agricultural crops and forestry;
    vi. It can help to stabilise soils, improve soil fertility and reduce erosion;
    vii. It can generate both heat and electricity in a cogeneration power plant.

9. Nuclear energy is the hope of future in India. It is justified because:
    i. India is deficient in mineral oil and its coal reserves would also exhaust soon.
    ii. India has not been able to develop the potential of hydel power to such extent that it may depend on it fully because of some constraints.
    iii. Technical know-how to harness nuclear energy is available.
    iv. This power can play a complementary role in industrial and agricultural development in India.
    v. Availability of sufficient reserves of nuclear minerals like uranium and thorium.
    vi. The most important source of energy for India in the coming decades is nuclear power, given its huge potential for growth, emission-free nature and consistent nature of production.
    vii. A significant expansion of nuclear power can both enable the connectivity of millions of Indians who currently lack access to the power grid and help it contribute to global efforts to tackle climate change by curbing its total carbon emissions.
    viii. With the growth in the number of industries utilizing fossil fuels as raw materials for production, the reserves of fossil fuels i.e., coal, oil and gas are also fast depleting.
    ix. In the current scenario alternative sources of energy like nuclear power, wind power and solar power can meet the future energy demands of the world.
    x. When compared to other sources of energy nuclear power has the unique capacity to release huge amount of energy from a very small quantity of active material.
    xi. The electricity requirements in India has grown tremendously and the demand has been running ahead of supply. So nuclear energy can play an important role to fulfill these requirement.
10. This pipeline has been constructed by Gas Authority of India Limited (GAIL) to transport gas. It is 1,750 km long and connects Hazira in Maharashtra to Bijapur in M.P. and Jagdishpur in U.P. It carries 18 million cubic metres of gas everyday to three power houses at Kawas (Gujarat), Anta (Rajasthan) and Auraiya (U.P.) and to six fertilizer plants at Bijapur, Sawai Madhopur, Jagdishpur, Shahjahanpur, Aonla and Babrala. Important Pipelines are in Hajira, Ankaleshwar, Vadodara, Jhabua, Vijaipur, Auraiya, Jagdishpur Shahjahanpur, Aonla, Babrala, Delhi, Sahibabad, Sonipat and Gurgaon