

Introduction

- Air, water, soil, coal, petroleum, natural gas and minerals are obtained directly from nature; therefore, they are known as natural resources.
- Plastics, synthetic fibres, steel, drugs, explosives are all manufactured by man.
- Anything in the environment which can be used is called as resource.
- Natural resources can be broadly classified into two kinds:

(i) **Inexhaustible Natural Resources:** The resources which are present in unlimited quantity in nature and are not likely to be exhausted by human activities. Examples are: sunlight, air.

(ii) **Exhaustible Natural Resources:** The resources whose amount in the nature is limited. They can be exhausted by human activities. Examples: are forests, wildlife, minerals, coal, petroleum, natural gas etc.

Fossil fuels

- The plants and animals that died millions of years ago, were buried deep under the earth and got covered with sediments like mud and sand, away from the reach of air.
- The temperature also rose as they sank deeper and deeper. Under high pressure and high temperature, dead plants got slowly converted to fossil fuels.
- Fossil fuels are classified as Coal, petroleum and natural gas.

Coal

- The process of conversion of dead organic matter into coal is called carbonisation since it contains mainly carbon.
- Coal is a black coloured hard substance.
- The major varieties of coal are Bituminous, lignite and Anthracite.
- The quality of coal depends on its carbon content. Greater the percentage of carbon in coal better is its quality.
- Anthracite is known as the best quality coal because of its high carbon content.
- The worst quality coal is peat because of its low carbon and high moisture content.
- Coal is processed by heating in the absence of air to produce following products:
 1. Coke
 2. Coal gas
 3. Coal tar

Coke

- It is a black, porous and tough substance. It is an almost pure form of carbon. Coke is used in the manufacture of steel and in the extraction of many metals.
- It is prepared by heating coal in the absence of air.
- When coal is heated in the absence of air, then coal gas and coal tar are eliminated and coke is left behind as a residue.
- Coke is almost the purest form of carbon. It is used as a reducing agent for the extraction of metal.
- It is used in the manufacture of steel.

Coal Gas

- When coal is processed to obtain coke, a gaseous fuel known as coal gas is produced.
- It is an excellent fuel because all the gases present in coal gas burn to produce heat.
- It is used as a fuel in many industries.

Coal Tar

- It is a thick black liquid having an unpleasant odour.
- It is a mixture of about 200 compounds.
- Naphthalene balls used to repel moth obtained are also derived from coal tar.
- It is used as a starting material in the manufacture of perfumes, explosives, plastics, paints, drugs etc.

Petroleum

- Petro is used as a fuel in light motor vehicles. Heavy motor vehicles run on diesel.
- Petrol and diesel are derived from natural resources called petroleum.
- It is a dark oily liquid with an unpleasant odour.
- It is a mixture of petroleum, gas, petrol, diesel, lubricating oil, paraffin wax, etc.

Formation of Petroleum

- Petroleum is derived from sea plants and animals.
- As these died, their dead remains got settled at the bottom of the sea and with time got covered with sand and clay.

- Under high temperature and pressure, these slowly got converted to petroleum and natural gas after millions of years.

Refining of Petroleum

- Petroleum contains several constituents like petroleum, gas, petrol, diesel, lubricating oil, paraffin wax, etc.
- These constituents are separated by a series of processes. This is known as Refining of petroleum. This is carried out in an oil refinery.

Uses of petroleum

- Gasoline derived from petroleum is used as a fuel in light motor vehicles such as cars, scooters etc.
- Many useful compounds are obtained from petroleum and natural gas. These are known as petrochemicals.
- These are used in the manufacture of fibres like nylon, detergents, polythene and many other man made plastics.

Natural Gas

- It is an important fossil fuel because it is easy to transport through pipes.
- It is a colourless and odourless gas.
- It is stored under high pressure as compressed Natural gas which is used in power generation.
- It is also being used as a cleaner fuel for transport vehicles.
- It is used as a starting material in the manufacture of various fertilisers and chemicals.
- It can be directly supplied through pipes and used for burning in homes and factories.
- Natural gas is found in Maharashtra, Tripura, Rajasthan and Krishna-Godavari delta.

Conservation of natural resources

- Fossil fuels are exhaustible and take millions of years for their formation.
- Burning of fossil fuel is the major cause of air pollution, which resulted in global warming.
- Therefore, the use of fossil fuels should be minimised.
- In India, there is a non- profit government agency known as the Petroleum Conservation Research Association (PCRA) which advises people how to save petrol/diesel while driving. These are :
- Drive at a constant and moderate speed.

- Switch off the engine at traffic lights or wherever you have to wait,
- Monitor correct tyre pressure.
- Regular maintenance of the vehicle.

