

**PARAGON CONVENT SCHOOL**

**SECTOR : 24B, CHANDIGARH**

**LESSON - 5**

**COAL AND PETROLEUM**

**Summary:**

- Resources available in nature are called natural resources.
- Non-exhaustive resources are those which do not get used up completely.
- Exhaustive resources are those which used up completely.
- Coal and petroleum are called fossil fuels.
- Coal was formed by carbonisation of forests that got buried in the Earth's crust millions of years ago.
- Petroleum was formed by decomposition of marine plant and animals who got buried under layers of sand over millions of years.
- Destructive distillation of coal produces coke, coal tar and coal gas.
- Coal gas and coke are used as fuels and coke is used in the extraction of metals from their ores.
- Fractional distillation of crude oil gives many substances like petroleum gas, petrol, kerosene, diesel, lubricating oil, bitumen, etc.
- Excessive burning of fossil fuels increases carbon dioxide in the air leading to global warming. Burning of fossil fuels also causes acid rain.
- We should conserve fossil fuels in order to make them last long and to reduce pollution.

**Multiple Choice Questions (Page No. 78)**

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

## **Multiple Choice Questions (Page No. 80, 81)**

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

### **SECTION A**

#### **Oral questions**

Q1.- What is meant by ‘ natural resources’?

Ans.- The materials which are present in nature and are useful to us to meet our basic needs are called natural resources.

Q2. - Why should fossil fuels be conserved?

Ans.- Fossil fuels have limited availability so, they should be conserved.

Q3.- What are the useful fractions obtained by the fractional distillation of petroleum?

Ans.- Petroleum gas, petrol, kerosene, diesel, lubricating oil, paraffin wax, bitumen and fuel oil

#### **Science quiz**

Q1.- Which fuel is used in jet aeroplanes?

Ans.- Special grade kerosene oil.

Q2.- Name a fuel which can be used as a domestic fuel.

Ans.- LPG/coal/ kerosene.

Q3.- Give the name of the fuel which is non polluting and used in vehicles.

Ans.- CNG

### **WORKSHEET**

#### **Tick ( √ ) the correct options**

1. (c)      2. (c)      3. (b)      4. (c)

**Circle the odd ones. Give reasons for your choice**

1. Gasoline            Bitumen            Coke            Paraffin wax

Ans.- Coke → It is obtained from destructive distillation of coal, whereas others are constituents of petroleum.

2. Petrol            Kerosene            Coal tar            LPG

Ans.- Coal tar → It is obtained from destructive distillation of coal, whereas others are constituents of petroleum.

3. Sunlight            Petroleum            Coal            Natural gas

Ans.- Sunlight → It is an inexhaustible natural resource, whereas others are exhaustible natural resources.

**Fill in the blanks**

1. destructive distillation            2. Bitumen  
3. Petroleum            4. Compressed Natural Gas

**SECTION B**

**Multiple Choice Questions**

1. (c)            2. (c)            3. (d)

**Very Short Answer Questions**

Q1.- Where is coal mainly found in India?

Ans.- In India, coal is mainly found in Bihar, Jharkhand, West Bengal, Odisha and Madhya Pradesh.

Q2.- Name any two constituents of petroleum.

Ans.- Petrol and kerosene / LPG / Diesel / fuel oil / lubricating oil / Bitumen.

Q3.- In which delta, natural gas has been found in India?

Ans.- Krishna - Godavari delta

Q4.- Name a liquid fossil fuel.

Ans.- Petroleum

Q5.- Give one use of coke.

Ans.- Coke is used as a reducing agent in extraction of metals from their ores. It is also used to heat furnaces in iron and steel industry.

### **Short Answer Type-I Questions**

Q1.- What are inexhaustible natural resources? Name any two inexhaustible natural resources.

Ans.- Resources which are present in unlimited quantity in nature and are not likely to be exhausted by human activities are called inexhaustible natural resources. For example: sunlight and air / water / rainfall / clay / sand.

Q2.- Write any one use each of diesel and bitumen.

Ans.- (a) Diesel is used as a fuel-for heavy vehicles like buses, trucks, ships, tractors, railway engines, etc, and to run water pumps to produce electricity on small scale.

(b) Bitumen is used for-making road surfaces, paints, damp proof foundation of buildings, coating the underside of electric poles to prevent rusting.

Q3.- What are petrochemicals?

Ans.- Useful substances obtained from petroleum and natural gas are called petrochemicals. They are used in the manufacture of synthetic fibres, polythene, synthetic rubber, etc.

Q4.- What is meant by 'refining of petroleum'?

Ans.- The process of separating the various constituents or useful fractions of petroleum is known as refining of petroleum.

### **Short Answer Type-II Questions**

Q1.- What are the different uses of coal?

Ans.- Coal is used :

- (i) in railway engines to produce steam that helps to run the engines.
- (ii) as a fuel to cook food in chulhas.
- (iii) in thermal power plants to produce electricity.
- (iv) in many industries to produce organic compounds.
- (v) in industries to obtain coke, coal tar, ammonical liquor and coal gas.

Q2.- What are fossil fuels? How do fossil fuels cause air pollution?

Ans.- Fuels like coal, petroleum and natural gas are all formed from the dead remains of plants and animals buried under the earth millions of years ago. These are known as fossil fuels. Burning of fossil fuels produces gases like carbon dioxide, carbon monoxide, sulphur dioxide and smoke which cause air pollution.

Q3.- Why is petroleum called 'black gold'?

Ans.- Petroleum is called 'black gold' because of its great commercial importance.

Q4.- Nitika goes with her father to a car showroom. Her father is confused whether to buy a CNG model or a petrol model.

- a) What would you suggest him and why?
- b) What do we learn on opting a CNG model?

Ans.- (a) I would suggest him to buy a CNG model because CNG is a cleaner fuel. Petrol causes air pollution.

(b) We learn to be environment friendly in all our actions by opting a CNG model.

## **Long Answer Questions**

Q1.- a) What is meant by ‘destructive distillation of coal’?

b) What are the products obtained by the destructive distillation of coal?

Ans.- (a) When coal is strongly heated in closed retorts in the absence of air to get some useful products, the process is called destructive distillation of coal.

(b) The products obtained by the destructive distillation of coal are coke, coal tar, ammoniacal liquor and coal gas.

Q2.- a) How is coal formed in nature?

b) How can we conserve fossil fuels?

Ans.- (a) Coal is formed by carbonisation, i.e., the slow chemical process of the conversion of the dead vegetation (remains of dead plants) into coal, under the influence of high temperature and pressure, for million of years.

(b) Methods for conservation of fossil fuels are:

i) By reducing the use of fossil fuels.

ii) By using renewable sources of energy like - hydroenergy, wind and solar energy.

iii) By using fuel-efficient machines.

Q3.- a) Why is CNG preferred over petrol or diesel?

b) Why should we switch off the engines of vehicles while waiting at the traffic lights?

Ans.- (a) CNG is preferred over petrol and diesel because it is a cleaner fuel. It produces only carbon dioxide and water. No ash is produced on burning of CNG. Another great advantage of CNG is that it can be supplied directly from the gas wells to the houses and factories through a network of pipelines.

(b) We should switch off the engines at traffic lights because this helps in conservation of fuels. This prevents the unnecessary combustion of fuels.

Q4.- Distinguish between exhaustible natural resources and inexhaustible natural resources on the basis of following parameters : i) availability ii) effects of human activities.

Ans.-

Parameters	Inexhaustible natural resources	Exhaustible natural resources
1.Availability	These are present in unlimited quantity in nature.	These are present in limited quantity in nature.
2. Effects of human activities	These are not likely to be exhausted by human activities.	These are likely to be exhausted by uncontrolled human activities.

Q5.- Distinguish between renewable and nonrenewable resources on the basis of following parameters : i) availability ii) effects of human activities.

Ans.-

Parameters	Renewable resources	Nonrenewable resources
1.Availability	These are available in unlimited quantity, if managed properly.	These are available in limited quantity.
3. Effects of human activities	These are not likely to be exhausted by human activities, but excessive and unwise use by humans may exhaust them. E.g. soil, forest, wildlife.	These are likely to be exhausted by uncontrolled human activities. Once used, they are lost forever. E.g. coal, petroleum, natural gas.