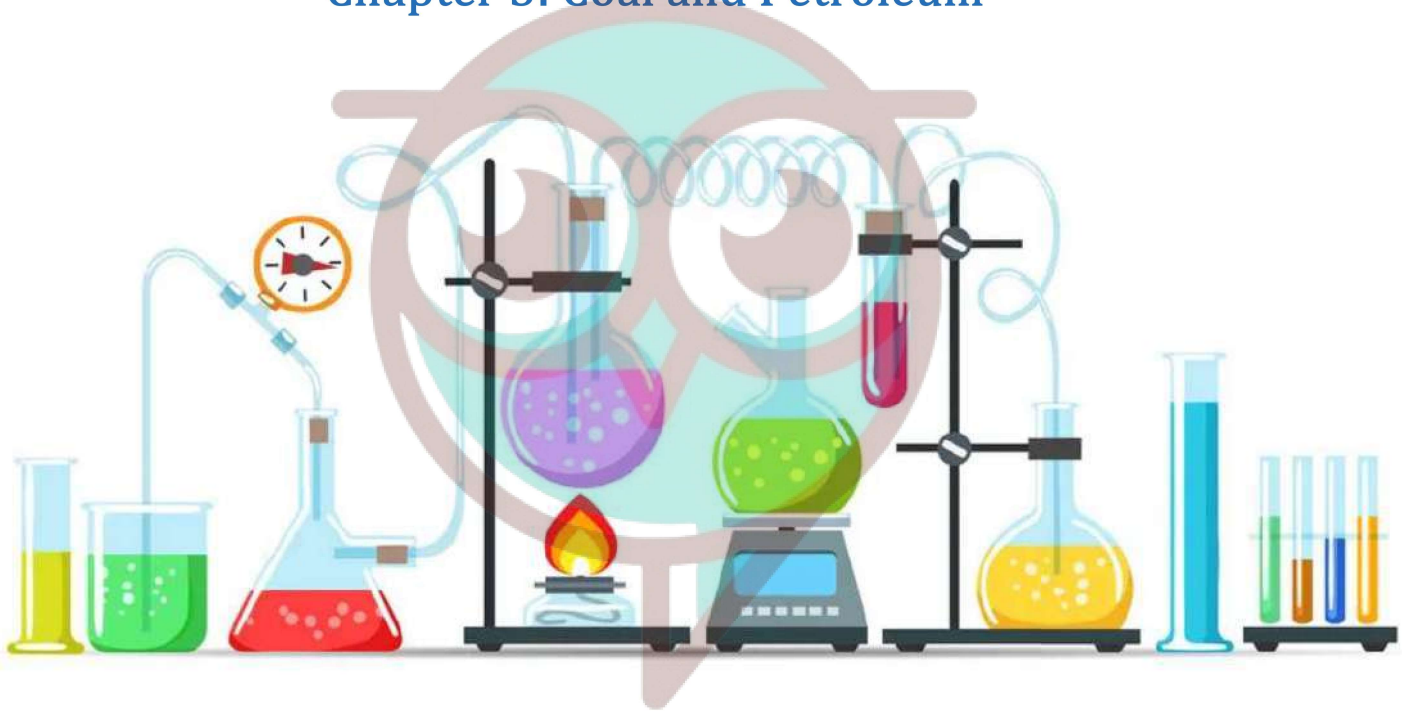


SCIENCE

Chapter 5: Coal and Petroleum



Swotters

Important Questions

Multiple Choice Questions-

Question 1. The most commonly used liquid fuel in our homes is:

- (a) kerosene
- (b) petrol
- (c) diesel
- (d) fuel oil

Question 2. The main elements present in petroleum are:

- (a) carbon and oxygen
- (b) carbon and nitrogen
- (c) carbon and hydrogen
- (d) hydrogen and oxygen

Question 3. The main gas present in LPG is:

- (a) methane
- (b) Propane
- (c) Butane
- (d) hexane

Question 4. CNG is:

- (a) combined natural gas
- (b) compressed natural gas
- (c) compressed nitrogen gas
- (d) clean natural gas.

Question 5. The place in India where natural gas is directly supplied through pipes (or) burning in homes and factories is:

- (a) Lucknow
- (b) surat
- (c) vadodara
- (d) munai

Question 6. "Black gold":



- (a) coal
- (b) coke
- (c) graphite
- (d) petrokum

Question 7. Hydrogen gas obtained from natural gas is used:

- (a) for fuelling rockets
- (b) for production of fertiliseirs
- (c) as fuel to be used at home
- (d) none of these

Question 8. Petrochemicals are obtained from

- (a) petroleum
- (b) natural gas
- (c) petroleum and natural gas
- (d) none of these

Question 9. Which of the following can be prepared in laboratory from dead organisms:

- (a) coal
- (b) petroleum
- (c) natural gas
- (d) none of these

Question 10. The estimated reserves of natural gas in india are:

- (a) 1 billion cubic metres
- (b) 10 billion cubic metres
- (c) over 100 billion cubic metres
- (d) 1 million cubic metres

Question 11. Which of the following ta not true about fossil fuels

- (a) it takes millions of years to form fossil fuels
- (b) the known reserves of fossil fuels will last for a long period of time
- (c) burning of fossil fuels causes air pollution
- (d) burning of fossil fuels causes global warming

Question 12. Natural gas is called clean fuel because:

- (a) it burns without producing any smoke
- (b) it burns completely
- (c) it does not leave behind any residue
- (d) all of these

Question 13. CNG is obtained when:

- (a) natural gas is subjected to low pressure
- (b) natural gas is subjected to high pressure
- (c) butane gas is subjected to high pressure
- (d) none of these

Question 14. The percentage of methane in natural gas is:

- (a) 100%
- (b) 90%
- (c) 95%
- (d) 80%

Question 15. Which of the following is a non-polluting fuel for transport vehicles.

- (a) petrol
- (b) diesel
- (c) CNG
- (d) none of these

Very Short :

1. Write the names of two natural substances.
2. Name two man-made substances.
3. Name two natural resources.
4. Write two exhaustible substances.
5. Why are air, water and soil called natural resources?
6. Name any two inexhaustible natural resources.
7. Why are Coal, Petroleum and Natural gas called fossil fuels?
8. Which gas is produced when coal burns in air?
9. Name the gas which is formed when coal is heated in the absence of air.

10. What is the purest form of carbon?
11. What is the main use of coke?
12. How many substances are found in coal tar?
13. Name the substance obtained from the coal tar and used to repel moths and insects.
14. Which substance is used for road surfacing these days?
15. Where was the first oil well drilled?

Short Questions :

1. What is Inexhaustible Natural Resource?
2. Define Exhaustible resources with few examples.
3. How was Coal formed?
4. How was Petroleum formed?
5. What do you mean by refining and petroleum refinery?
6. What do you understand by Petrochemical products. What are their uses?
7. Name few places where Natural Gas has been found in India.
8. Why should we use some resources like coal and petroleum in limit?
9. What are the advices of PCRA to save petrol/diesel while driving?
10. What are the harmful effects of using fossil fuels?

Long Questions :

Question 1. Explain about the varieties of coal.

Question 2. The burning of fossil fuels causes air pollution. Explain.

Question 3. Write a short note on petroleum.

Question 4. How is the energy useful to us? Explain.

Question 5. Describe coal and its various products along with their uses.

ANSWER

MCQ:

Answer

(a) kerosene

Kerosene is commonly used liquid fuel in our homes.

Answer

(c) carbon and hydrogen

The main elements present in petroleum are carbon and hydrogen.

Answer

(c) Butane

The main gas present in LPG is Butane.

Answer

(b) compressed natural gas

CNG is Compressed Natural Gas.

Answer

(c) vadodara

The place in India where natural gas is directly supplied through pipes for burning in homes and factories is Vadodara

Answer

(d) petrokum

Petroleum is 'Black gold'.

Answer

(b) for production of fertilisers

Hydrogen gas obtained from natural gas is used for production of fertilisers.

Answer

(c) petroleum and natural gas

Petrochemicals are obtained from petroleum and natural gas.

Answer

d) none of these

Coal, petroleum and natural gas cannot be prepared in laboratory from dead

Answer

(c) over 100 billion cubic metres

The estimated reserves of natural gas in India are over 100 billion cubic metres.

Answer

(b) the known reserves of fossil fuels will last for a long period of time

Fossil fuels will last only for a short period of time.

Answer

(d) all of these

Natural gas is called clean fuel because it burns without producing any smoke, it burns completely, it does not leave behind any residue.

Answer

(b) natural gas is subjected to high pressure

CNG is obtained when natural gas is subjected to high pressure.

Answer

(c) 95%

The percentage of methane in natural gas is 95%.

Answer

(c) CNG

CNG is a non-polluting fuel for transport vehicles

Very Short :

1. **Answer:** (i) Air (ii) Water

2. **Answer:** (i) Car (ii) Bus

3. **Answer:** (i) Air (ii) Water

4. **Answer:** (i) Coal (ii) Natural gas

5. **Answer:** Air, water and soil are provided by nature so they are called natural resources.

6. **Answer:** (i) Air (ii) Sunlight

7. **Answer:** Coal, Petroleum and Natural gas are formed by fossils, so they are called fossil fuels.

8. **Answer:** Carbon dioxide.

9. **Answer:** Coal gas.

10. **Answer:** Coke.

11. **Answer:** It is used in the extraction of metals.

12. **Answer:** About 200 substances.

13. **Answer:** Naphthalene balls.

14. **Answer:** These days bitumen is used for road surfacing in place of coal tar.

15. **Answer:** The first oil well was drilled at Pennsylvania, USA, in 1859.

Short Answer :

1. **Answer:** The resources which are present in unlimited quantity in nature and are not likely to be exhausted by human activities are known as Inexhaustible Resources. For **Example:** Sunlight, air.

2. **Answer:** All resources which are found in a limited quantity in nature are known as Exhaustible resources. They can be exhausted by human activities. Example of these

resources is Forests, Minerals, Coal, Petroleum, Natural Gas etc.

3. **Answer:** About 300 years ago the earth had dense forests in low lying wetland areas. Due to natural processes, like flooding these forests got buried under the soil. They get sank deeper and deeper and temperature gets increasing day by day, under high pressure and high temperature dead plants slowly got converted to coal.
4. **Answer:** Petroleum was formed from organisms living in the sea. As these organisms died, their bodies settled at the bottom of the sea and got covered with layers of sand and clay. Over Millions of years in absence of air and under high temperature and high pressure the dead organisms get transformed into Petroleum and natural Gas.
5. **Answer:** The process of separating various components or fraction of petroleum is called refining. This process is carried out in petroleum refinery.
6. **Answer:** Petroleum and natural gas provide many useful substances. These are termed as 'Petrochemicals'. These are used in manufacturing of detergents, fibres, polythene and other man made plastics
7. **Answer:** In our country Natural Gas has been found in Tripura, Rajasthan, and Maharashtra and in the Krishna Godavari Delta.
8. **Answer:** As we know Coal and petroleum are fossil fuels. The dead organisms takes millions of years to get converted into these fuels, On the other hand the known reserves of these will last almost a few hundred years. A part from this since these products are not environmental friendly as burning of these fuels is a major cause of air pollution and their use is also linked to global warming therefore we should use these resources only when it is actually required.
9. **Answer:**
 - I. Drive at a constant and moderate speed as far as possible
 - II. Switch off the engine at traffic lights or at a place where you have to wait
 - III. Ensure correct type pressure
 - IV. Ensure regular maintenance of the vehicle.
10. **Answer:** Harmful effects of burning fossil fuels are as following:
 - (i) Burning of fossil fuels cause air pollution.
 - (ii) They also cause global warming because they produce greenhouse gas like carbon dioxide on burning.

Long Answer:

1. Answer:

Depending upon the amount of carbon content, coal may be of four types:

Peat: This is the most inferior and softest form of coal. Its carbon content is very low. It has a large amount of moisture and is not much suitable to be used as fuel.

Lignite: Lignite is comparatively harder than peat, but still is very soft. Its carbon content is more than that of peat.

Bituminous: Its carbon content is higher, as it is free from moisture and other impurities.

Anthracite: This is the highest grade coal. This is also known as hard coal. It has maximum amount of carbon. It produces a very little smoke.

2. Answer:

The burning of fossil fuels causes a lot of air pollution.

The burning of coal produces gases like carbon dioxide, carbon monoxide, sulphur dioxide, etc., which can lead to undesirable changes in climate due to increase greenhouse effect.

The major air pollutants produced by the burning of petrol in automobiles are carbon monoxide, sulphur dioxide, unburnt hydrocarbons, etc. These pollutants are harmful for human beings and living organisms which causes breathing problems and skin diseases.

3. Answer:

Petroleum is the liquid form of fuel. It is also known as crude oil and found trapped between the layers of impervious rocks under the ground. It is a natural resource, which formed by the dead plants and animals in the sea. It is a dark coloured viscous liquid and like all other oils, it is lighter than water. It is a mixture of different hydrocarbons. It undergoes fractional distillation to yield petrol, kerosene, diesel and other chemicals used in manufacture of plastics.

4. Answer:

We need energy in almost every field of our life. Without energy our life is impossible.

Some of the uses of energy are:

- We need energy of fuels to generate electricity and to run vehicles.
- We need energy to run our electrical appliances like refrigerator, TV, radio, computer, etc.
- We need energy at construction sites to construct houses, buildings, etc.
- We need energy to cook our food and other domestic use.
- We need energy (petrochemicals) for manufacturing fibres, plastics, paints, cosmetics, etc.
- All the factories, industries, agricultural devices depend on power supply to run the machines.

5. Answer: Coal is a hard and black coloured non-metal which is used to cook food, in the past it was also used to run railway engines, apart from this it is also used to produce electricity in thermal power plant; it is also used as fuel in various industries.

Following are the products of coal:

- I. **Coke:** Coke is a product of coal; it is tough, porous, and black in colour and almost pure

form of carbon. It is used in making steels and in extraction of many metals

- II. **Coal tar:** coal tar is the product of coal which is the mixture of various substances. Products obtained from coal tar is used for manufacturing a variety of products like dyes, drugs, perfumes, explosives, paints, photographic materials, roofing materials etc.
- III. **Coal gas:** Coal gas is obtained during the processing of Coal to get coke. It is used as a fuel in many industries situated near the coal processing plants.



Swotters