

Coal and Petroleum

Very Short Answer Type Questions

Question 1.

Name three useful products of coal.

Answer:

The three useful products of coal are following:

Coke: It is a tough, porous and black substance. It is almost pure form of carbon.

Coal tar: It is a mixture of about 200 substances. It is a black, thick liquid with unpleasant smell.

Coal gas: It is obtained during the processing of coal to get coke.

Question 2.

Which product of coal is used as a reducing agent in the extraction of metals?

Answer:

Coke is used as a reducing agent in the extraction of metals. It is used in the manufacture of steel and in the extraction of many metals.

Question 3.

Name the process by which plant material (or vegetation) buried deep under the earth was slowly converted into coal.

Answer:

Carbonisation is the process by which plant material or vegetation buried deep under the earth was slowly converted into coal. Since, coal was formed from the remains of vegetation, it is also known as fossil fuel.

Question 4.

Name the product of coal which is thick black liquid having an unpleasant smell.

Answer:

Coal tar is the product of coal which is a thick black liquid having an unpleasant smell. It is a mixture of about 200 substances.

Question 5.

Name any five substances used in everyday life which are manufactured starting from the products of coal tar.

Answer:

Substances used in everyday life which are manufactured starting from the products of coal tar are following:

Synthetic dyes, drugs, perfumes, plastics and paints. Naphthalene balls used to repel moths and other insects are also obtained from coal tar.

Question 6.

Name an important source from which naphthalene balls are obtained.

Answer:

Naphthalene balls used to repel moths and other insects are obtained from coal tar.

Question 7.

Which substance is used for metalling the roads these days in place of coal tar?

Answer:

Bitumen, a petroleum product, is used in place of coal-tar for metalling the roads.

Question 8.

Name the most common fuel used in light motor vehicles.

Answer:

Petrol is used as a fuel in light motor vehicles such as motor cycles, scooters and cars.

Question 9.

Name the fuel which is used in jet aircraft engines.

Answer:

Kerosene is used as fuel in jet aircraft engines.

Question 10.

Name the petroleum product used to drive heavy vehicles.

Answer:

Diesel is used as a fuel for heavy motor vehicles and electric generators.

Question 11.

Name the petroleum product which is commonly used for electric generators.

Answer:

Diesel is used as a fuel for electric generators.

Question 12.

What is the full form of LPG?

Answer:

The full form of LPG is Liquefied petroleum gas. It is also referred as propane or butane. It is flammable and is used as fuel in heating appliances, cooking equipment and vehicles.

Question 13.

Is it possible to extract petroleum from under the sea bed?

Answer:

Petroleum can be extracted from under the sea bed. It can be extracted with giant drilling machines. The layer containing petroleum oil and gas is above that of water.

Question 14.

What is the full form of CNG?

Answer:

The full form of CNG is compressed natural gas. Natural gas is a very important fossil fuel because it is easy to transport through pipes. Natural gas is stored under high pressure as compressed natural gas (CNG).

Question 15.

Name the major component of natural gas.

Answer:

Natural gas consists of primarily of methane but also contains ethane, propane and heavier hydrocarbons. It also contains small amounts of nitrogen, carbon dioxide, hydrogen sulphide and very little amount of water.

Question 16.

Name any two places in India where natural gas is found.

Answer:

India has huge reserves of natural gas. It has been found in Tripura, Rajasthan, Maharashtra and in the Krishna Godavari delta.

Question 17.

Name a fossil fuel other than coal and petroleum.

Answer:

Natural gas is a fossil fuel other than coal and petroleum. Natural gas consists of ethane, propane and heavier hydrocarbons.

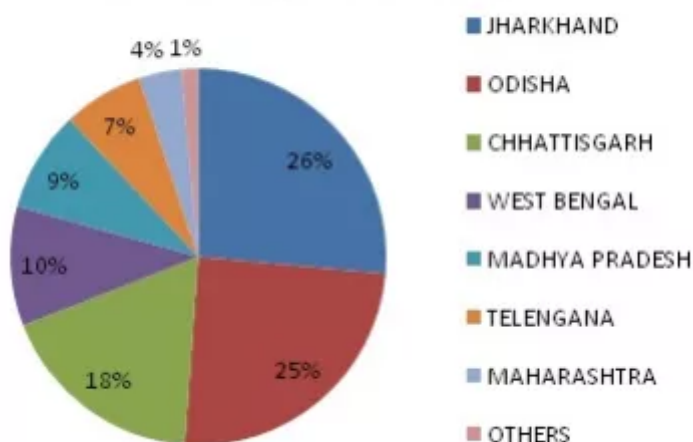
Question 18.

Name two places in India where coal is found.

Answer:

India has abundant domestic reserves of coal. Coal can be found in Jharkhand and West Bengal.

Coal Reserve in India



Question 19.

Name the petroleum product used for surfacing of roads.

Answer:

Bitumen is used for the surfacing of roads.

Question 20.

Name any four places in India where petroleum is found.

Answer:

In India, oil is found in Assam, Gujarat, Mumbai High and in the river basins of Godavari and Krishna.

Question 21.

Write the full form of PCRA.

Answer:

The full form of PCRA is Petroleum Conservation Research Association. It advises people how to save petrol/diesel while driving.

Question 22.

State whether the following statements are true or false:

- (a) Coke is almost pure from carbon.
- (b) Coal tar is a mixture of various substances.
- (c) Kerosene is not a fossil fuel.
- (d) CNG is more polluting than petrol.
- (e) Fossil fuels can be made in the laboratory.

Answer:

- (a) This statement is True.

It is a tough, porous and black substance. It is almost pure form of carbon.

- (b) This statement is True.

Coal tar is the product of coal which is a thick black liquid having an unpleasant smell. It is a mixture of about 200 substances.

- (c) This statement is False.

Kerosene is a fossil fuel. It is used as a fuel for stoves, lamps and for jet aircrafts.

- (d) This statement is False.

CNG is less polluting than petrol. It is a clean burning fuel. It produces 45% less hydrocarbons than petrol.

- (e) This statement is False.

The formation of fossil fuels is a very slow process. These are formed under very high pressure and high temperature. The conditions for their formation cannot be created in the laboratory.

Question 23.

Fill in the following blanks with suitable words:

- (a) Fossil fuels are.....and.....
- (b) Coal contains mainly.....
- (c) The slow process of conversion of dead vegetation into coal is called.....
- (d) The process of separation of different constituents from petroleum is called.....
- (e) The least polluting fuel for vehicles is.....
- (f) The burning of fossil fuels causes air.....and also leads to global.....

Answer:

- (a) The correct Answer: isCoal, petroleum andnatural gas.

Coal, Petroleum and natural gas are formed from the dead remains of living organisms or fossils. So, these are all known as fossil fuels.

- (b) The correct Answer: is carbon.

Coal is formed from the remains of vegetation, it is also called a fossil fuel. Being produced from vegetation it mainly contains carbon.

- (c) The correct Answer: is Carbonisation.

Carbonisation is the process by which plant material or vegetation buried deep under the earth was slowly converted into coal. Since, coal was formed from the remains of vegetation, it is also known as fossil fuel.

- (d) The correct Answer: isrefining.

Petroleum is a mixture of various constituents such as petroleum gas, petrol, diesel, lubricating oil, paraffin wax, etc. The process of separating the various constituents or fractions of petroleum is known as refining. It is carried out in a petroleum refinery.

- (e) The correct Answer: isCNG.

The full form of CNG is compressed natural gas. Natural gas is a very important fossil fuel because it is easy to transport through pipes. Natural gas is stored under high pressure as compressed natural gas (CNG).

(f) The correct Answer: is pollution; warming.

Burning of fossil fuels affects the environment because they release carbon dioxide and other harmful gases such as Sulphur dioxide, nitrogen oxides and carbon monoxides. These gases trap heat in the earth's atmosphere and causes global warming which contributes to global climate change.

Short Answer Type Questions

Question 24.

Explain why, fossil fuels are exhaustible natural resources.

Answer:

The amount of fossil fuels is very limited in nature. They can be exhausted by human activities. The formation of fossil fuels is a very slow process. These are formed under very high pressure and high temperature. For example, coal, petroleum and natural gas are fossil fuels. Coal was formed by the process of carbonisation. Carbonisation is the process by which plant material or vegetation buried deep under the earth was slowly converted into coal.

Question 25.

Describe how coal was formed. What is this process called?

Answer:

Coal was formed millions and millions of years ago in swampy forests where some plants died and some grew simultaneously. As the years passed, the layers of dead plants collected one over the other and formed thick layers. With changing weather conditions, more plants grew and the layers of dead plants continued to form deep. Coal is a fossil fuel. The heat and the pressure produced physical and chemical changes in the layers which resulted in the rich carbon content and forced the oxygen into the environment. This rich carbon content became as coal. This process of forcing the oxygen out and leaving behind carbon content was called as carbonisation. In other words, Carbonisation is the process by which plant material or vegetation buried deep under the earth was slowly converted into coal. This is a very slow process and usually, takes millions of years.

Question 26.

What happens when coal is heated in air? State the uses of coal.

Answer:

When heated in air, coal burns and produces mainly carbon dioxide gas. Coal can be processed in industry to get some useful products such as coke, coal tar and coal gas. Coal is used as a fuel in industries and was used to cook food. It was used in railway engines to produce steam to run the engine. It is used in thermal power plants to produce electricity.

Question 27.

State the uses of coke.

Answer:

Coke is a very useful product of coal. It is a tough, porous and black substance. It is almost pure form of carbon. It is used as a reducing agent in the extraction of metals. It is also used in the manufacture of steel and in the extraction of many metals.

Question 28.

What are the constituents of coal gas? State one use of coal gas.

Answer:

Coal gas is a product of coal. It is obtained during the processing of coal to get coke. Coal gas contains a variety of gases like hydrogen, carbon monoxide, methane and some volatile hydrocarbons. It also contains small quantities of gases such as carbon dioxide and nitrogen. It is used as a fuel in many industries situated near the coal processing plants.

Question 29.

What are the major products (or fractions) of petroleum refining? Give one use of each petroleum product.

Answer:

The process of separating the various constituents or fractions of petroleum is known as refining. It is carried out in a petroleum refinery. The main products of petroleum refining are petroleum gas, petrol, diesel, lubricating oil, paraffin wax and kerosene. Following are the uses of petroleum products:

Petroleum gas is used as fuel for home and industry.

Petrol is used as a Motor fuel, aviation fuel and solvent for dry cleaning.

Diesel is used as a fuel for heavy motor vehicles and electric generators.

Lubricating oil is used as a lubricant.

Kerosene is used as a fuel for stoves, lamps and for jet aircrafts.

Paraffin wax is used in ointments, candles and Vaseline etc.

Bitumen Paints are used in road surfacing.

Question 30.

What are the advantages of using natural gas (or CNG) as a fuel?

Answer:

CNG is compressed natural gas. Natural gas is a very important fossil fuel because it is easy to transport through pipes. Natural gas is stored under high pressure as compressed natural gas (CNG). It is advantageous to use CNG as a fuel because it is less polluting than petrol. It is a clean burning fuel. It produces 45% less hydrocarbons than petrol. The great advantage of CNG is that it can be used directly for burning in homes and factories where it can be supplied through pipes.

Question 31.

State the various uses of natural gas.

Answer:

Natural gas is a very important fossil fuel because it is easy to transport through pipes. It can be used as a fuel in homes and factories. It is also used as a starting material for the manufacture of a number of chemicals and fertilizers.

Question 32.

What is CNG? State its one use.

Answer:

CNG is compressed natural gas. Natural gas is a very important fossil fuel because it is easy to transport through pipes. Natural gas is stored under high pressure as compressed natural gas (CNG). It can be used as a fuel in homes and factories. It is also used as a starting material for the manufacture of a number of chemicals and fertilizers.

Question 33.

Where the natural gas found? Why is natural gas called a clean fuel?

Answer:

India has huge reserves of natural gas. It has been found in Tripura, Rajasthan, Maharashtra and in the Krishna Godavari delta. It is advantageous to use CNG as a fuel because it is less polluting than petrol. It is a clean burning fuel. It produces 45% less hydrocarbons than petrol. The great advantage of CNG is that it can be used as fuel in homes and factories where it can be supplied through pipes.

Question 34.

What are the advantages of using LPG as fuel?

Answer:

LPG stands for liquified Petroleum Gas. It is used as fuel for home and industry. Advantages of using LPG as a fuel is that it is non-toxic and reduces the interior pollution by 90% as compared to other fuels such as coal or wood. The carbon dioxide emissions are very low. It is an economical fuel source. It burns very efficiently, with very low combustion emissions and does not create black smoke.

Question 35.

Name any five useful substances which are manufactured from petrochemicals.

Answer:

Many useful substances are obtained from petroleum and natural gas. These are termed as 'Petrochemicals'. These are used in the manufacture of detergents, fibres (polyester, nylon, acrylic etc.), polythene and other man-made plastics. Hydrogen gas obtained from natural gas, is used in the production of fertilisers (urea).

Question 36.

Which material is called 'black gold'? why?

Answer:

Many useful substances are obtained from petroleum and natural gas. These are termed as 'Petrochemicals'. These are used in the manufacture of detergents, fibres such as polyester, nylon, acrylic etc., polythene and other man-made plastics. Hydrogen gas obtained from natural gas, is used in the production of fertilisers such as urea. Due to its great commercial importance, petroleum is also called 'black gold'.

Question 37 A.

Where and when was the world's first oil well drilled?

Answer:

The world's first oil well was drilled in Pennsylvania, USA, in 1859

Question 37 B.

Where and when was oil first struck in India?

Answer:

At Makum in Assam, in 1867, oil was struck in India. Oil is found in Assam, Gujarat, Mumbai High and in the river basins of Godavari and Krishna.

Question 38.

State one use each of the following products of petroleum:

(a) petroleum gas,

- (b) petrol,
- (c) Diesel,
- (d) Lubricating oil,
- (e) Bitumen

Answer:

- (a) Petroleum gas is used as fuel for home and industry.
- (b) Petrol is used as a Motor fuel, aviation fuel and solvent for dry cleaning.
- (c) Diesel is used as a fuel for heavy motor vehicles and electric generators.
- (d) Lubricating oil is used as a lubricant.
- (e) Bitumen Paints are used in road surfacing.

Question 39.

What is the major cause of air pollution? Write the various tips for minimizing the wastage of petrol/diesel while driving vehicles.

Answer:

Burning of fossil fuels is the major cause of air pollution. Burning of fossil fuels affects the environment because they release carbon dioxide and other harmful gases such as Sulphur dioxide, nitrogen oxides and carbon monoxides. These gases trap heat in the earth's atmosphere and causes global warming which contributes to global climate change. It is therefore necessary that we use these fuels only when absolutely necessary. This will result in better environment, smaller risk of global warming and their availability for a longer period of time. In India, the Petroleum Conservation Research Association (PCRA) advises people how to save petrol or diesel while driving. Their tips are:

- Drive at a constant and moderate speed as far as possible
- Switch off the engine at traffic lights or at a place where you have to wait,
- Make sure there is correct tyre pressure, and
- Ensure regular maintenance of the vehicle.

Question 40.

Why should we use fossil fuels only when absolutely necessary?

Answer:

Burning of fossil fuels affects the environment due to the release carbon dioxide and other harmful gases such as Sulphur dioxide, nitrogen oxides and carbon monoxides. These gases trap heat in the earth's atmosphere and causes global warming which contributes to global climate change. It is therefore necessary that we use these fuels only when absolutely necessary. It took millions of years for the dead organisms to get converted into these fuels. On the other hand, the known reserves of these fuels will last only a few hundred years. It is therefore, necessary to conserve these natural resources. This will also result in better environment, smaller risk of global warming and their availability for a longer period of time.

Question 41.

State (a) two uses of kerosene, and (b) two uses of paraffin wax.

Answer:

Kerosene is used as a fuel for stoves, lamps and for jet air crafts.
Paraffin wax is used in ointments, candles and Vaseline etc.

Long Answer Type Questions

Question 42 A.

What is meant by inexhaustible natural resources? Name two inexhaustible natural resources.

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 natural resources. For example, sunlight and air are inexhaustible natural resources.

Question 42 B.

What is meant by exhaustible natural resources? Name any two exhaustible natural resources.

Answer:

The resources which are present in a limited amount in nature are known as exhaustible natural resources. They can be exhausted by human activities. Examples of these resources are forests, wildlife, minerals, coal, petroleum, natural gas etc.

Examples: Forests, wildlife, minerals, coal, petroleum, natural gas etc.

It is, therefore, necessary that we use these fuels only when absolutely necessary. It took millions of years for the dead organisms to get converted into coal, petroleum, natural gas etc.

Question 43 A.

What are fossil fuels? Name three fossil fuels.

Answer:

The exhaustible natural resources which are formed from the dead remains of living organisms or fossils are known as fossil fuels. For example, coal, petroleum and natural gas are fossil fuels. The resources are present in limited amount in nature and are known as exhaustible natural resources. They can be exhausted by human activities.

Question 43 B.

Describe how, fossil fuels were formed.

Answer:

The fossil fuel such as coal is formed from the remains of dead vegetation. Earth had dense forests in low lying wetland areas about 300 million years ago. Due to natural processes, like flooding, these forests got buried under the soil. Due to soil deposition over these dead plants, they were compressed. The temperature also increased as they sank deeper and deeper. Under high pressure and high temperature, dead plants got slowly converted to coal. As coal contains mainly carbon, the slow process of conversion of dead vegetation into coal is called carbonisation. Since it was formed from the remains of vegetation, coal is also called a fossil fuel.

The fossil fuel such as petroleum is formed from the dead animals under the sea. As these organisms died, their bodies settled at the bottom of the sea. They got covered with layers of sand and clay. Over millions of years, in the absence of air, with high temperature and high pressure, these the dead organisms were transformed into petroleum and natural gas.

Question 44 A.

What is petroleum? Where does petroleum occur?

Answer:

The exhaustible natural resources which are formed from the dead remains of living organisms or fossils are known as fossil fuels. For example, coal, petroleum and natural gas are fossil fuels. The

fossil fuel such as petroleum is formed from the dead animals under the sea. As these organisms died, their bodies settled at the bottom of the sea.

They got covered with layers of sand and clay. Over millions of years, in the absence of air, with high temperature and high pressure, these the dead organisms were transformed into petroleum and natural gas. The main constituents of petroleum are petroleum gas, petrol, diesel, lubricating oil, paraffin wax and kerosene. Petroleum can be extracted from under the sea bed. It can be extracted with giant drilling machines. The layer containing petroleum oil and gas is above that of water.

Question 44 B.

Describe the process of formation of petroleum.

Answer:

The fossil fuel such as petroleum is formed from the dead animals under the sea. As these organisms died, their bodies settled at the bottom of the sea. They got covered with layers of sand and clay. Over millions of years, in the absence of air, with high temperature and high pressure, these the dead organisms were transformed into petroleum and natural gas.

Question 45 A.

What are petrochemicals? Name any two petrochemicals.

Answer:

The fossil fuel such as petroleum is formed from the dead animals under the sea. As these organisms died, their bodies settled at the bottom of the sea. They got covered with layers of sand and clay. Over millions of years, in the absence of air, with high temperature and high pressure, these the dead organisms were transformed into petroleum and natural gas. Many useful substances are obtained from petroleum and natural gas. These are termed as 'Petrochemicals'. These are used in the manufacture of detergents, fibres such as polyester, nylon, acrylic etc., polythene and other man-made plastics.

Question 45 B.

Why are petro-chemicals so important?

Answer:

Many useful substances are obtained from petroleum and natural gas. These are termed as 'Petrochemicals'. These are used in the manufacture of detergents, fibers such as polyester, nylon, acrylic etc., polythene and other man-made plastics. Hydrogen gas obtained from natural gas is used in the production of fertilizers such as urea. Due to its great commercial importance, petroleum is also called 'black gold'.

Multiple Choice Questions (MCQs)

Question 46.

Which one of the following is not a fossil fuel?

- A. petrol
- B. coke
- C. charcoal
- D. coal

Answer:

C. charcoal

Charcoal is mostly pure carbon which is made by cooking wood in a low oxygen environment. This process can take days and burns off volatile compounds such as water, methane, hydrogen, and tar.

Petrol, coke and coal are fossil fuels which are formed from the dead remains of living organisms or fossils.

Question 47.

The major component of LPG is:

- A. hydrogen
- B. carbon monoxide
- C. methane
- D. butane

Answer:

D. butane

The full form of LPG is Liquefied petroleum gas. It is also referred as propane or butane. It is flammable and is used as fuel in heating appliances, cooking equipment and vehicles.

Question 48.

Which is the major component of CNG?

- A. ethane
- B. propane
- C. methane
- D. butane

Answer:

A. ethane

CNG consists primarily of methane but also contains ethane, propane and heavier hydrocarbons. It also contains small amounts of nitrogen, carbon dioxide, hydrogen sulphide and very little amount of water.

Question 49.

The gas which occurs above the petroleum oil trapped under the rocks is called:

- A. Biogas
- B. Petroleum gas
- C. Natural gas
- D. Coal gas

Answer:

B. Petroleum gas

Petroleum can be extracted from under the sea bed. It can be extracted with giant drilling machines. The layer containing petroleum oil and gas is above that of water.

Question 50.

Which of the following is being used as a source of hydrogen gas needed to manufacture fertilizers?

- A. biogas
- B. natural gas
- C. coal gas
- D. petroleum gas

Answer:

B. natural gas

The full form of CNG is compressed natural gas. Natural gas is a very important fossil fuel because it is easy to transport through pipes. It can be used as a fuel in homes and factories. It is also used as a starting material for the manufacture of a number of chemicals and fertilizers.

Question 51.

One of the following is not an exhaustible source of energy. This one is:

- A. natural gas
- B. petroleum gas
- C. coal gas
- D. biogas

Answer:

D. biogas

Biogas can be produced from raw materials such as agricultural waste, manure, plant material, green waste or food waste. It is a renewable source of energy. Natural gas, coal gas and petroleum gas are fossil fuels and are nonrenewable sources of energy.

Question 52.

The slow process by which the large land plants and trees buried deep under the earth have become coal is called:

- A. carbonation
- B. carburetion
- C. carbonisation
- D. carbocation

Answer:

C. carbonisation

Carbonisation is the process by which plant material or vegetation buried deep under the earth was slowly converted into coal. Since, coal was formed from the remains of vegetation, it is also known as fossil fuel.

Question 53.

Which of the following is used as a reducing agent in the extraction of iron metal?

- A. coal
- B. bitumen
- C. charcoal
- D. coke

Answer:

Coke is a tough, porous and black substance. It is almost pure form of carbon. It is used as a reducing agent in the extraction of metals. It is used in the manufacture of steel and in the extraction of many metals.

Question 54.

Which of the following is usually referred to as 'black gold'?

- A. coke
- B. coal tar
- C. petroleum
- D. coal

Answer:

Many useful substances are obtained from petroleum and natural gas. These are termed as 'Petrochemicals'. Due to its great commercial importance, petroleum is also called 'black gold'.

Question 55.

the various compounds present in coal tar are separated by the process of:

- A. simple distillation
- B. destructive distillation
- C. fractional distillation
- D. fractional crystallization

Answer:

Coal tar is a mixture of about 200 substances. It is a black, thick liquid with unpleasant smell. Synthetic dyes, drugs, perfumes, plastics and paints. Naphthalene balls used to repel moths and other insects are also obtained from coal tar.

Question 56.

Which of the following is not obtained as a fractional during the refining of petroleum?

- A. kerosene
- B. natural gas
- C. lubricating oil
- D. bitumen

Answer:

B. natural gas

Natural gas is a fossil fuel other than coal and petroleum. Petroleum can be extracted with giant drilling machines. The layer containing petroleum oil and natural gas is above that of water.

Question 57.

Which one of the following is an inexhaustible natural resource?

- A. coal
- B. petroleum
- C. water
- D. forests

Answer:

C. water

Water is an inexhaustible natural resource because it is available abundantly in nature.

Questions Based on High Order Thinking Skills (HOTS)

Question 58.

The substances W is a fossil fuel. It occurs deep below the ground in certain areas of the earth. Another fossil fuel X is found trapped above the deposits of W. when W is subjected to a process called Y, then a number of different products are collected at different temperature ranges which are put to different uses. A special grade of product Z obtained in this way is used as an aviation fuel in jet aero planes.

- (a) What are (i) W, and (ii) X
- (b) what is the physical state of (i) W, and (ii) X?
- (c) Name the process Y?
- (d) Name the product Z?

Answer:

(a) The substance W is Petroleum and substance Y is Natural gas. Natural gas is a fossil fuel other than coal and petroleum. Petroleum can be extracted with giant drilling machines. The layer containing petroleum oil and natural gas is above that of water.

(b) The physical state of W is a liquid. Petroleum is a dark oily liquid. It has an unpleasant odor. It is a mixture of various constituents such as petroleum gas, petrol, diesel, lubricating oil, paraffin wax, etc.

The physical state of X is Gas. Natural gas is a fossil fuel other than coal and petroleum. Natural gas is a very important fossil fuel because it is easy to transport through pipes. Natural gas is stored under high pressure as compressed natural gas (CNG). It can be used as a fuel in homes and factories. It is also used as a starting material for the manufacture of a number of chemicals and fertilizers.

(c) Process Y is known as Fractional distillation. It is the process of separation of a mixture into its components, by the difference in their boiling points. Mixture is heated which causes one or more components to vaporize at different temperatures. The process of separating the various constituents or fractions of petroleum is known as refining. It is carried out in a petroleum refinery.

(d) The product Z is Kerosene. Kerosene is one of the constituent of petroleum. It is a fossil fuel. It is used as a fuel for stoves, lamps and for jet air crafts.

Question 59.

The material A is fossil fuel which is extracted from the earth. It is said to be formed from the buried, large land plants by a very slow process B. when A is heated in the absence of air in a process called C, then it gives three products D, E and F. The product D is used as a reducing agent in the extraction of metals, the product E is used as an industrial fuel whereas the product F has been traditionally used for metallic the roads.

(a) What could material A be?

(b) What is (i) physical state, and (ii) colour, of A?

(c) Name the processes (i) B, and (ii) C.

(d) What are (i) D, (ii) E, and (iii) F?

Answer:

(a) The material A is Coal. Coal is a fossil fuel. It was formed by the process of carbonisation.

Carbonisation is the process by which plant material or vegetation buried deep under the earth was slowly converted into coal. This is a very slow process and usually takes millions of years.

(b) Coal exists as solid. It is as hard as stone and is black in colour.

(c) The process B is carbonization. It is a process by which plant material or vegetation buried deep under the earth was slowly converted into coal. This is a very slow process and usually takes millions of years.

The process C is Destructive distillation. Destructive distillation is a chemical process of decomposition of a solid by heating it in a closed container. The volatile constituents produced in this process can be separated. Coal is processed in industry to get some useful products such as coke, coal tar and coal gas.

(d) The product D is coke, E is Coal gas and F is Coal tar.

Coal is processed in industry by the process of destructive distillation to get some useful products

such as coke, coal tar and coal gas. Coke is a tough, porous and black substance. It is almost pure form of carbon. Coal is a mixture of about 200 substances. It is a black, thick liquid with unpleasant smell. Coal gas is obtained during the processing of coal to get coke.

Question 60.

The fossil fuel P is formed under the earth by the decomposition of vegetable matter lying under water by the action of anaerobic bacteria. The major component of fuel P is Question The fossil fuel P is used as a source of gas R needed to manufacture nitrogenous fertilizers. When P is filled in metal cylinders and used as a fuel in motor vehicles, it is called S. What are P, Q, R and S?

Answer:

The fossil fuel P is known as Natural Gas. Natural gas is a very important fossil fuel because it is easy to transport through pipes. Natural gas is stored under high pressure as compressed natural gas (CNG). It can be used as a fuel in homes and factories. It is also used as a starting material for the manufacture of a number of chemicals and fertilizers.

The substance Q is Methane. It is the primary component of Natural gas. Natural gas also contains ethane, propane and heavier hydrocarbons.

The substance R is Hydrogen. Natural gas is used in the manufacture of fertilizers and is used as a source of hydrogen.

The substance S is Compressed natural gas also known as CNG. Natural gas is a very important fossil fuel because it is easy to transport through pipes. Natural gas is stored under high pressure as compressed natural gas (CNG). It is advantageous to use CNG as a fuel because it is less polluting than petrol. It is a clean burning fuel. It produces 45% less hydrocarbons than petrol.