Lakhmir Singh Science Class 8 Solutions For Chapter 5 Coal And Petroleum

1. Name three useful products of coal.

Coal tar, Coal gas, and Coke are the three useful products of coal.

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

Coal is used as a reducing agent in the extraction of metals.

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

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

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

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

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

Plastics, paints, drugs, perfumes, and paints.

6. Name an important source from which naphthalene balls are obtained.

An important source from which naphthalene balls are obtained is coal tar.

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

Bitumen is used for metalling the roads these days in place of coal tar.

8. Name the most common fuel used in light motor vehicles.

The most common type of fuel used in light motor vehicles is petrol.

9. Name the fuel which is used in jet aircraft engines.

Kerosene is used as fuel in jet aircraft engines.

10. Name the petroleum product used to drive heavy vehicles.

Diesel is used to drive heavy vehicles.

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

The petroleum product which is commonly used for electric generators is diesel.

12. What is the full form of LPG?

Full form of LPG is Liquified Petroleum Gas.

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

Yes, it is possible to extract petroleum from under the sea bed using a giant drilling machine.

14. What is the full form of CNG?

CNG stands for Compressed Natural Gas.

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15. Name the major component of natural gas.

The major component of natural gas is Methane.

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

Maharashtra and Tripura are the two places in India where natural gas is found.

17. Name a fossil fuel other than coal and petroleum.

A fossil fuel other than coal and petroleum is natural gas.

18. Name two places in India where coal is found.

Answer

West Bengal and Jharkhand are two places in India where coal is found

19. Name the petroleum product used for surfacing of roads.

The petroleum product used for surfacing of roads is Bitumen.

20. Name any four places in India where petroleum is found.

Assam, Gujarat, Mumbai high and river basins of Godavari and Krishna are the places in India where petroleum is found.

21. Write the full form of PCRA.

PCRA stands for Petroleum Conservation Research Association.

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.

Ans:

(a) True

(b) True

(c) False

(d)False

(e) False

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_____

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(e) The least polluting fuel for vehicle is _____

(f) The burning of fossil fuel causes air _____and also causes global_____

(a) Fossil fuels are coal, petroleum, and natural gas.

(b) Coal contains mainly carbon.

(c) The slow process of conversion of dead vegetation into coal is called carbonisation.

(d) The process of separation of different constituents from petroleum is refining.

(e) The least polluting fuel for vehicle is CNG

(f) The burning of fossil fuel causes air pollution and also causes global warming.

Short Answer Type Questions

24. Explain why fossil fuels are exhaustible natural resources.

The process of the formation of fossil fuels requires millions of years. Dead vegetation and animals that get buried deep inside the earth require high temperature and pressure for the formation of fossil fuels, which cannot be done in the laboratory. Thus, fossils are limited. Therefore, the use of fossil fuels at a rapid rate will lead to their exhaustion.

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

Dense forests got buried under the soil due to natural processes, millions of years ago. More and more soil got deposited over them and they got compressed more. This led them to get exposed to very high temperature and pressure. They slowly got converted into coal under these extreme conditions. The whole process of the formation of coal from dead vegetation is known as carbonization.

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

If coal is heated in the presence of air, then coal burns to produce mainly carbon dioxide gas, and no other useful products are obtained. It is a gaseous fuel that is obtained by the strong heating of coal in the absence of air during the processing of coal to get a coke.

27. State the uses of coke.

Uses of coke:

i) In the manufacture of steel.

ii) In the extraction of metals (as a reducing agent).

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

Coal gas is obtained as a byproduct while producing coke. Its smell is not very pleasant. It is a highly flammable gas as the main component of it is methane. Thus, if not regulated carefully, it can form a mixture with air resulting in explosions.

Uses of coal gas:

- It is mainly used as a fuel in industries situated near coal processing plants.
- It is more commonly used to provide heat for domestic and industrial purposes.

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

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The major products (or fractions) of petroleum refining are:

- Petroleum gas
- Diesel
- Petrol
- Kerosene
- Lubricating oil
- Paraffin wax
- Bitumen

Uses of petroleum refined products:

- Liquefied Petroleum Gas or LPG is used in households as well as in the industry.
- Diesel and petrol are used as fuels for vehicles. Diesel is generally preferred for heavy motor vehicles.
- Petrol is also used as a solvent for dry cleaning, whereas diesel is also used to run electric generators.
- Kerosene is used as a fuel for stoves and jet planes.
- Lubricating oil reduces wear and tear and corrosion of machines.
- Paraffin wax is used to make candles, ointments, ink, crayons, etc.
- Bitumen or asphalt is mainly used to surface roads.

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

The advantages of using natural gas (or CNG) as a fuel are:

- Natural Gas is a cleaner fuel.
- It can be easily stored and transferred through pipelines.
- It is relatively more abundant than other fossil fuels i.e. coal and petroleum.
- It is also a safer fuel, as it is lighter than air and dissipates rather than exploding.
- It provides instant energy, which is why it is used in the oven cooking, as it does not require pre-heating.

31. State the various uses of natural gas.

Uses of natural gas:

- It is used to turn turbines for wind and solar energy generation.
- This fossil fuel is used for the production of ammonia which itself is used for making fertilizers.
- It is a domestic fuel as well.
- Compressed Natural Gas or CNG, which is gas stored at high pressure, is also used in some households for heating and cooking purposes.
- Alternative for a transportation fuel used in low load vehicles requiring high fuel efficiency.
- Liquefied Natural Gas or LNG is used to power vehicles such as off-road trucks and trains.

32. What is CNG? State its one use.

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Compressed Natural Gas (CNG) is a fuel source that is made from compressing natural gas to less than 1% of its standard atmospheric volume, or 3,600 PSI. CNG can be used in place of gasoline or diesel in any vehicle with a CNG conversion kit available or CNG engine.

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

Natural gas is found in deep underground rock formations or near petroleum or coal reservoirs. It is called clean fuel because:

- It burns completely and produces 50% less CO_2 gas than coal when burning
- Efficient combustion process
- Non-toxic and non-poisonous

34. What are the advantages of using LPG as fuel?

The advantages of using LPG as fuels are as follows

- LPG burns easily.
- LPG gives a lot of heat energy when burnt.
- LPG can be transported easily through pipelines.
- LPG are clean fuels and they do not release smoke when burnt.

35. Name any five useful substances which are manufactured from petrochemicals.

Useful substances which are manufactured from petrochemicals are Detergents, Dyes,

Plastics, Paints, and some raw materials for pharmaceutical companies.

36. Which material is called 'black gold'? why?

Petroleum is referred to as Black Gold. It is used to manufacture various products such as pharmaceuticals, plastics, gasoline, synthetic fabrics, etc so it is called black gold.

37. (a) Where and when was the world's first oil well drilled?

(b) Where and when was oil first struck in India?

(a) The world's first oil well was drilled in Pennsylvania, USA, in 1859.

(b) in 1867, oil was struck at Makum in Assam. In India, oil is found in Assam, Gujarat, Mumbai High, and in the river basins of Godavari and Krishna.

38. State one use each of the following products of petroleum: (a) petroleum gas, (b) petrol, (c) Diesel, (d) Lubricating oil, (e) Bitumen

(a) LPG is used in households as well as in the industry.

(b) Petrol is used as fuels for vehicles

(c) Diesel is generally preferred for heavy motor vehicles.

(d) Lubricating oil reduces wear and tear and corrosion of machines.

(e) Bitumen or asphalt is mainly used to surface roads.

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

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The burning of fossil fuels is the main cause of air pollution. On burning, these produce harmful gases like carbon monoxide, sulfur dioxide, etc and cause global warming in the atmosphere. Then this leads to depletion of the ozone layer.

Tips for minimizing the wastage of vehicles:

- Drive the vehicle at a constant speed
- Switch off the vehicle's engine at a traffic light
- Ensure correct air pressure in the tires of the vehicle

40. Why should we use fossil fuels only when absolutely necessary?

Fossil fuel is a non-renewable resource and it takes millions of years to rebuild. The burning of fossil fuels is the main cause of air pollution. On burning, these produce harmful gases like carbon monoxide, sulfur dioxide, etc and cause global warming in the atmosphere. Then this leads to depletion of the ozone layer. Hence we should use fossil fuels only when absolutely necessary.

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

(a) (i) Kerosene is used as a fuel for jets

(ii) Kerosene is also used as fuel for airplanes

(b) (i) Paraffin wax is used to make candles and toys

(ii) Paraffin wax is also used as a coating to keep fruits and vegetables fresh.

Long Answer Type Questions

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

An inexhaustible resource is a resource that never runs out or gets depleted. Some of such resources include wind, sun, solar energy, tides, and geothermal energy. They are mostly the naturally occurring resources hence they reappear naturally. These resources can be regenerated and can be utilized efficiently. The resources are available all over the world and they are easy to access.

42. (b) What is meant by exhaustible natural resources? Name any two exhaustible natural resources.

Exhaustible sources are those sources of energy, which will deplete and exhaust after a few hundred years. Coal, petroleum, etc. are the exhaustible sources of energy. If all the exhaustible natural resources are exhausted by human activities then survival of living beings would be impossible. Fossil fuels are a very important source of energy for us today. On burning fossil fuel, it gives off heat and light. The heat produced can be used to cook food or to run engines such as automobile engines. It is also used to generate electricity as in powerhouse where the most common fuel used is coal.

43. (a) What are fossil fuels? Name three fossil fuels.

(b) Describe how, fossil fuels were formed.

(a) Fossil fuels are buried flammable geologic deposits of organic substances such as dead plants, and animals that got deposited under several thousand feet of silt. These deposits decayed with the passage of time and got converted to natural gas, coal, and petroleum due to the extreme heat and pressure inside the earth's crust. They are also known as non-renewable sources of energy as it takes a very long time for it to replenish.

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44. (a) What is petroleum? Where does petroleum occur?

(b) Describe the process of the formation of petroleum.

(a) Petroleum is a naturally occurring element that is in a liquid state. It is either yellow or black in color. Petroleum is referred to as Black Gold. It is usually found in geological formations underneath the earth's crust. When it is drilled from the ground in the liquid form, it is called crude oil.

(b) Dead organisms that got buried in the sea millions of years ago got covered with layers of sand and clay. Due to lack of air, high temperature, and high pressure, these dead organisms got transformed into petroleum and natural gas.

45. (a) What are petrochemicals? Name any two petrochemicals.

(b) Why are petro-chemicals so important?

(a) The other by-products are obtained from petroleum and are used widely. These substances are called petrochemicals. Some of the petrochemicals are detergents, dyes, kerosene, etc.

(b)Petrochemicals are used in many fields and have a wide range of uses. Kerosene is used as a fuel in jet planes. Some of the products are used by the pharmaceuticals. Hence, it is an important substance across society, politics, technology including in economy

Multiple Choice Answer Type Questions

46. Which one of the following is not a fossil fuel?

(a) Petrol

(b) Coke

(c) Charcoal

(d) Coal

Ans: (c) Charcoal

47. The major component of LPG is:

(a) Hydrogen

(b) Carbon monoxide

(c) Methane

(d) Butane

Ans: (d) Butane

48. Which is the major component of CNG?

(a) Ethane

(b) Propane

(c) Methane

(d) Butane

Ans: (a) Ethane

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

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(a) Biogas

(b) Petroleum gas

(c) Natural gas

(d) Coal gas

Ans: (b) Petroleum gas

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

Ans: (b) Natural gas

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