INDIAN SCHOOL AL WADI AL KABIR		
CLASS: VIII	**DEPARTMENT: SCIENCE 2024-25**	**DATE: 13-08-2024**
WORKSHEET NO.: 4	**TOPIC:COAL AND PETROLEUM**	**NOTE: A4 FILE FORMAT**
NAME OF THE STUDENT:	**CLASS & SEC:**	**ROLL NO.**

I. OBJECTIVE-TYPE QUESTIONS

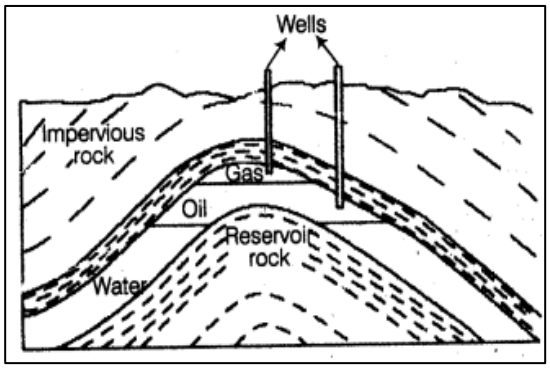
1. Carbonisation is the:
   a) slow process of conversion of dead animals into coal
   b) fast process of conversion of dead animals into curd
   c) slow process of conversion of dead vegetation into coal
   d) fast process of conversion of dead vegetation into coal

2. Which resource is an inexhaustible natural resource?
   a) Coal
   b) Natural gas
   c) Petroleum
   d) Solar energy

3. Under which conditions does coal formation take place from plant and animal remains?
   a) High temperature and high pressure
   b) High pressure and cold surroundings
   c) Low pressure and high temperature
   d) Low pressure and cold surroundings

4. Which byproduct is obtained after processing coal?
   a) Diesel
   b) Petrol
   c) Coke
   d) Paraffin wax

5. The image shows petroleum and natural gas deposits. Why is the layer of oil formed between natural gas and water?



   a) Because reservoir rocks allow only water to pass through it
   b) Because different rock layers separate the three substances
   c) Because oil releases natural gas that forms a new layer over oil
   d) Because gas and oil are lighter than water and the three substances do not mix.

6. 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

7. 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

8. Naphthalene balls are obtained from:
   a) coke
   b) coal tar
   c) coal gas
   d) natural gas

For the following questions, two statements are given- one labelled Assertion (A) and the other labelled Reason (R). Select the correct answer to these questions from the codes (i), (ii), (iii), and (iv) as given below

i) Both A and R are true and R is the correct explanation of the assertion.
ii) Both A and R are true but R is not the correct explanation of the assertion.
iii) A is true but R is false.
iv) A is false but R is true

9. **Assertion (A):** Sunlight and air are inexhaustible resources.
   Reason(R): These resources are present in unlimited quantities in nature and are not likely to be exhausted by human activities.

Ans: i) Both A and R are true and R is the correct explanation of the assertion.

10. **Assertion (A):** Petroleum is referred to as 'black gold.
    Reason (R): Petroleum resembles molten gold in appearance.
    Ans: iii) A is true but R is false.

11. **Assertion (A):** Crude oil has to be refined or purified before its different constituents can be used.
    Reason(R): Petroleum gas, petrol, diesel, kerosene, paraffin wax, and lubricating oil are obtained from the refining of petroleum.
    Ans: ii) Both A and R are true but R is not the correct explanation of the assertion.

12. **Assertion (A):** Coal is a fossil fuel.
    Reason(R): It is formed due to the compression of inorganic material over millions of years.
    Ans: iii) A is true but R is false.

II. VERY SHORT ANSWER (2M)

1. Define carbonisation. **[The slow process of conversion of dead vegetation into coal.]**
2. Why is petrol an exhaustible natural resource, whereas sunlight is not? Explain. **[Sunlight is present in unlimited quantities in nature whereas it takes millions of years to form petrol from dead remains of organisms.]**
3. What is meant by refining petroleum? **[The process of separating crude oil into usable components.]**
4. You are provided with a mixture of petroleum and water. Can you suggest a method to separate the two? **[Decantation can be used to separate a mixture of petroleum and water. The mixture is allowed to stand. Petroleum is lighter than water, so it floats over water which can be decanted later.]**
5. What is meant by natural resources? Give examples. **[Natural resources are the materials present in nature that are useful to human beings. E.g.: soil, air, water, sunlight, coal.]**
6. Name the places where natural gas is found in India**. [Tripura, Rajasthan, Maharashtra and in the Krishna Godavari delta.]**
7. Name the major constituent of natural gas. **[Methane]**
8. Why is natural gas called a very important fossil fuel these days? **[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). CNG is used for power generation.]**

III. SHORT ANSWER TYPE QUESTIONS: (3M)

1. What does CNG stand for and why is it considered to be a better fuel than petrol? **[CNG stands for Compressed Natural Gas. It is considered to be a better fuel because it burns with a smokeless flame and causes no air pollution. It also does not produce any poisonous gases on burning.]**

2. Give reasons:
   a) Petroleum is also called black gold. **[Great commercial importance]**
   b) We should switch off the engines of vehicles while waiting at traffic lights. [**To save petrol or diesel and save for future use]**
   c) Coal, petroleum and natural gas are fossil fuels **[They are obtained from dead remains of plants and animals buried under the earth's crust millions of years ago]**
   d) Mention the characteristics of coal. **[It is black in colour and as hard as a stone, it mainly consists of carbon, it burns in the presence of air and produces carbon dioxide gas and heat, it is a combustible substance which means that it can be burned, hence it is used as a fuel.]**

3. How does the formation of petroleum take place? **[Petroleum was formed from organisms living in the sea. As these organisms died, their bodies settled at the bottom of the sea and were covered with layers of sand and clay. Over millions of years, the absence of air, high temperature and high pressure transformed the dead organisms into petroleum and natural gas.]**

4. Write the full form of- PCRA. Mention the tips we must follow to save petrol/diesel while driving. **[Petroleum Conservation Research Association, 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, ensure correct tyre pressure, Ensure regular maintenance of the vehicle.]**

IV. LONG ANSWER TYPE QUESTIONS (5 M):

1. a) Name the products obtained and their uses when coal is processed in the industry. **[Coal when processed in the industry gives coke, coal tar and coal gas. Coke is used in the manufacture of steel and the extraction of many metals. Coal tar is used as a starting material for manufacturing various substances such as synthetic dyes, drugs, explosives, perfumes, paints etc. Coal gas is used as fuel]**

   b) Mention some of the uses of coal**. [It is one of the fuels used to cook food. Earlier it was used in railway engines to produce steam to run the engine. It is used as fuel in thermal power plants to produce electricity and in various other industries.]**

c) What steps would you suggest for the judicious use of fuels**? [(i) We should use fossil fuels only when necessary. (ii) We can also use natural gas as a substitute. The reserves of natural gas discovered by us have gone up ten times within 20 years. (iii)Alternative sources of energy such as solar, wind and biomass should be used in place of fossil fuels]**

2. Prepare a table showing various components of petroleum and write their uses.

SL NO	CONSTITUENTS OF PETROLEUM	USES
1	**Petroleum Gas in Liquid form(LPG)**	**Fuel for home and industry**
2	**Petrol**	**Motor fuel, aviation fuel, solvent for dry cleaning**
3	**Kerosene**	**Fuel for stoves, lamps and jet aircraft**
4	**Diesel**	**Fuel for heavy motor vehicles, electric generators**
5	**Lubricating oil**	**Lubrication**
6	**Paraffin wax**	**Ointments, candles, Vaseline etc.**
7	**Bitumen**	**Paints, road surfacing**

V. SOURCE-BASED/CASE-BASED QUESTIONS:

Read the passage carefully and answer the following questions.

a) In the light of the availability of various resources in nature, natural resources can be broadly classified into two kinds- Inexhaustible and Exhaustible resources. Inexhaustible natural resources are present in unlimited quantities in nature and are not likely to be exhausted by human activities. Examples are sunlight and air. Exhaustible resources are present in limited quantities in nature. They can be exhausted by human activities. Examples of these resources are forests, wildlife, minerals, coal, petroleum, natural gas etc. Some exhaustible natural resources like coal, petroleum and natural gas. These were formed from the dead remains of living organisms (fossils). So, these are all known as *fossil fuels.* Energy stored in fossil fuels is derived from decayed animals and plants that have existed for millions of years. Resources such as coal and petroleum are limited. Burning of such fuels is the major cause of air pollution. Therefore, these fuels should be used only when necessary. Burning of these fossil fuels releases gases like carbon dioxide which cause the greenhouse effect.

i) What is meant by fossil fuels? **[Fuels formed by natural bacterial decomposition of buried dead plants and animals under extreme heat and pressure.]**

ii) We say fossil fuels will last only for a few hundred years. Comment. **[It takes a very long time for the formation of fossil fuels. It also requires specific conditions and**

it doesn't happen quite often. Therefore, their limited stock will last only for a few hundred years]

iii) We read in newspapers that the burning of fuels is a major cause of global warming. Explain why. **[Burning of fuel will produce carbon dioxide which is a greenhouse gas. This results in global warming. An increase in the amount of carbon dioxide leads to a rise in temperature on the earth, melting of ice caps and glaciers resulting in the rise in sea levels.]**

iv) Why should we use fossil fuels only when necessary**? [Fossil fuels are exhaustible resources, fossil fuels require millions of years for formation, they increase air pollution and are linked to global warming.]**

b) In a remote village nestled amidst dense forests, a team of geologists discovered a peculiar black substance from the ground. Upon further investigation, they found that the substance was coal. The villagers were curious about the discovery and approached the geologists with questions.

i) Identify and explain the primary source of coal and petroleum. **[Ans: The primary source of coal is ancient plant matter that has undergone geological processes over millions of years. Petroleum primarily originates from the remains of marine organisms, such as plankton, that were buried in sedimentary rocks.]**

ii) Discuss the process involved in the formation of coal and petroleum. **[Ans: Coal forms from the compression and decomposition of plant matter in swampy environments over millions of years. Pressure and heat transform the organic material into peat, lignite, bituminous coal, and eventually anthracite coal. Petroleum forms, similarly, but from the remains of marine organisms buried in sedimentary rocks. Over time, heat and pressure convert the organic material into crude oil and natural gas.]**

iii) Explain the significance of coal tar in industries. **[Ans: Coal tar is a valuable by-product of coal processing and has various industrial applications. It is used in the manufacturing of materials like asphalt for road construction, roofing materials, and as a base for coatings and paints. Additionally, coal tar derivatives are used in the pharmaceutical and chemical industries for producing dyes, drugs, and other products.]**

iv) Describe the environmental impact of coal and petroleum extraction in the region **[Ans: The extraction and burning of coal and petroleum can have significant environmental impacts, including air and water pollution, habitat destruction, and greenhouse gas emissions contributing to climate change.]**

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