COAL AND PETROLEUM

Chapter: 5

SCIENCE

CLASS: - 8TH

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Chapter: 5
Coal and Petroleum

Exercises:

Q1: What are the advantages of using CNG and LPG as fuels?

Ans: The advantages of CNG and LPG fuels are: -

(a) Cleaner emissions, reducing air pollution and environmental impact.

(b) Cost savings due to lower fuel prices compared to gasoline or diesel.

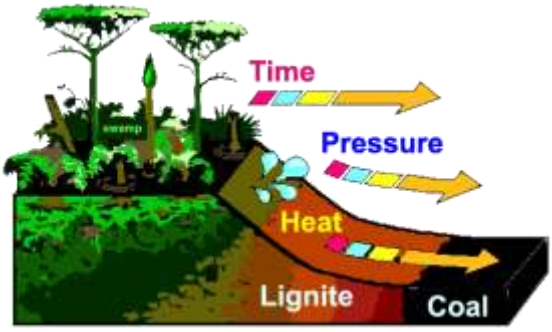
(c) They produce large amount of heat when burn.

(d) They can be transported easily though pipe lines.

Q2: Name the petroleum product used for surfacing of roads.

Ans: Bitumen.

Q3: Describe how coal is formed from dead vegetation. What is this process called?



Ans: Coal is formed through a process called coalification. It starts with dead vegetation, such as plants and trees, accumulating in muddy environments. Over millions of years, as the vegetation is buried under layers of sediment, heat and pressure transform it into peat. With further burial and geological processes, peat undergoes compaction and chemical changes, gradually turning into different types of coal, including lignite, sub-bituminous coal, bituminous coal, and anthracite. This transformation from dead vegetation to coal is a slow process that takes place over millions of years.

Q4: Fill in the blanks.

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

(b) Process of separation of different constituents from petroleum is Called refining**.**

(c) Least polluting fuel for vehicle is CNG (Compressed natural gas).

Q5: Tick True/False against the following statements.

(a) Fossil fuels can be made in the laboratory. (F)

(b) CNG is more polluting fuel than petrol. (F)

(c) Coke is almost pure form of carbon. (T)

(d) Coal tar is a mixture of various substances. (T)

(e) Kerosene is not a fossil fuel. (F)

Q6: Explain why fossil fuels are exhaustible natural resources.

Ans: - Fossil fuels are exhaustible due to their slow formation process over millions of years. Human extraction and consumption rates exceed the rate of formation. Depletion of easily accessible reserves and environmental concerns further limit their availability.

Q7: Describe characteristics and uses of coke.

Ans: - Coke is a solid carbonaceous material that is produced from coal or petroleum. Coke has a high carbon content, typically ranging from 90% to 95%. The characteristics of coke, including its high carbon content, heat resistance, low impurities, and various industrial applications, make it a valuable fuel and reducing agent in the iron and steel industry, as well as in other high-temperature processes.

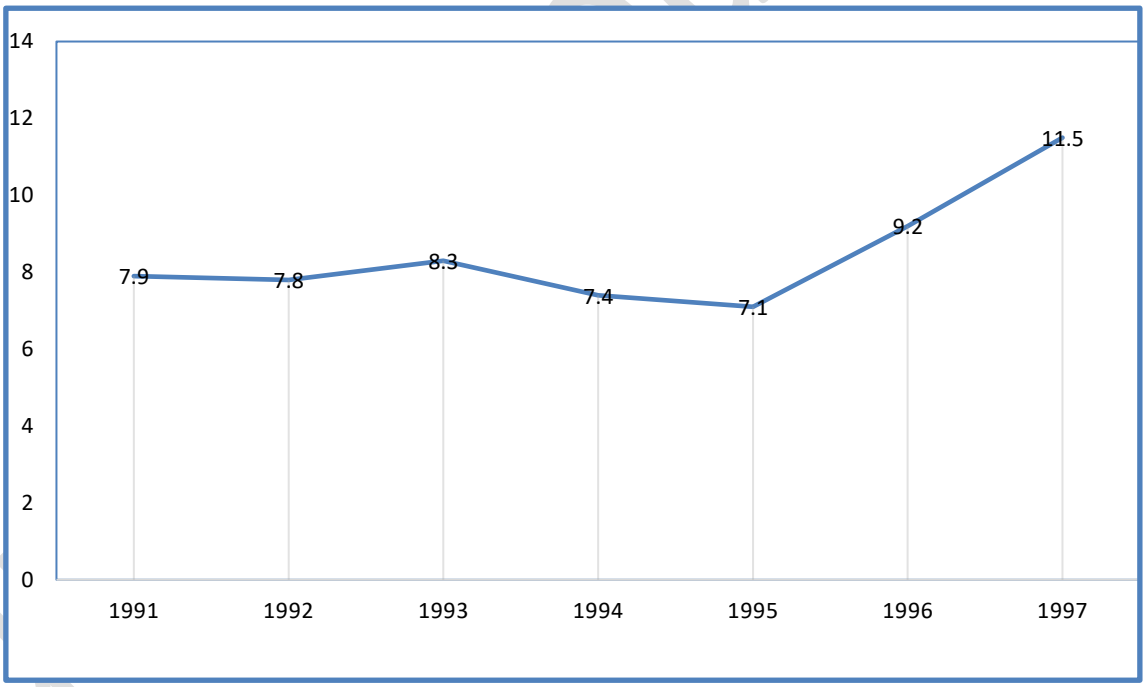
Q8: Explain the process of formation of petroleum.

Ans: - The formation of petroleum involves several steps over millions of years. It begins with the accumulation of organic matter, such as microscopic plants and animals, in ocean and lake environments. Over time, these organic materials get buried under layers of sediment. As the sediment layers increase, the organic matter undergoes heat and pressure, causing the transformation into liquid and gaseous hydrocarbons, forming petroleum. Migration and accumulation of petroleum in porous rocks, such as reservoir rocks, create commercially exploitable oil and gas deposits.

Q9: The following Table shows the total power shortage in India from 1991–1997. Show the data in the form of a graph. Plot shortage percentage for the years on the Y-axis and the year on the X-axis.

S.No.	Year	Shortage (%)
1.	1991	7.9
2.	1992	7.8
3.	1993	8.3
4.	1994	7.4
5.	1995	7.1
6.	1996	9.2
7.	1997	11.5

Ans:



Key Words

(i) Coal: Coal is a solid fossil fuel that is primarily composed of carbon along with various other elements. It forms from the decomposition of plant matter in muddy environments over millions of years.

(ii) Coal Gas: Coal gas, also known as town gas, is a flammable gas produced by heating coal in the absence of air. It consists mainly of methane, carbon monoxide, and hydrogen.

(iii) Coal Tar: Coal tar is a thick, black, sticky liquid obtained from the distillation of coal. It is a by-product of coal gasification and coking processes.

(iv) Coke: Coke is a solid carbonaceous material derived from coal or petroleum. It is produced by heating coal in the absence of air, which drives off volatile compounds and leaves behind a porous, high-carbon substance.

(v) Fossil Fuel: Fossil fuels are natural energy sources formed from the remains of ancient plants and animals. They include coal, oil (petroleum), and natural gas.

(vi) Natural Gas: Natural gas is a fossil fuel primarily composed of methane along with traces of other hydrocarbon gases. It is formed from the same geological processes as petroleum.

(vii) Petroleum: Petroleum, also known as crude oil, is a complex mixture of hydrocarbons found beneath the Earth's surface. It is formed from the remains of marine microorganisms, subjected to heat and pressure over millions of years.

(viii) Petroleum Refinery: A petroleum refinery is an industrial facility that processes crude oil to separate and refine its various components. These products include gasoline, diesel, jet fuel, heating oil, and various other petroleum-based chemicals and products.