

Very Short Answer Questions

Q. 1. Two glass jars A and B are filled with carbon dioxide and oxygen gases, respectively. In each jar a lighted candle is placed simultaneously. In which jar will the candle remain lighted for a longer time and why? [NCERT Exemplar]

Ans. In jar B, because oxygen is a supporter of combustion.

Q. 2. Anu wants to boil water quickly in a test tube. On observing the different zones of the flame, she is not able to decide which zone of the flame will be best for boiling water quickly. Help her in this activity. [NCERT Exemplar]

Ans. Anu should keep her test tube in the outermost zone which is the hottest part of the flame.

Q. 3. Why is the use of diesel and petrol as fuels in automobiles being replaced by Compressed Natural Gas (CNG) in big cities? [NCERT Exemplar]

Ans. It is because CNG produces harmful products in very small amount and is a cleaner fuel.

Q. 4. If you hold a piece of iron wire with a pair of tongs inside a candle flame or a Bunsen burner flame, what will you observe? Will it produce a flame? [NCERT Exemplar]

Ans. Iron wire will become red hot and glow. It will not produce a flame.

Q. 5. What is fuel?

Ans. The combustible substance that undergoes combustion is termed as fuel.

Q. 6. What do you understand by the term ignition temperature?

Ans. The lowest temperature at which a combustible substance catches fire is known as ignition temperature.

Q. 7. Write some characteristics of an ideal fuel.

Ans. An ideal fuel is cheap, readily available, readily combustible and easy to transport. It has high calorific value. It does not produce gases or residues that pollute the environment.

Short Answer Questions

Q. 1. Separate the following materials as combustible and non-combustible.

Charcoal, chalk, stone, iron rod, copper coin, straw, cardboard, glass, paper, candle, Wood [NCERT Exemplar]

Ans. (a) Combustible: Charcoal, straw, cardboard, paper, candle, wood.

(b) Non-combustible: Chalk, stone, iron rod, copper coin, glass.

Q. 2. People usually keep Angethi/burning coal in their closed rooms during winter season. Why is it advised to keep the door open? [NCERT Exemplar]

Ans. Due to insufficient availability of oxygen in the closed room carbon monoxide gas is produced which can kill persons sleeping in that room.

Q. 3. Cracker on ignition produces sound. Why? [NCERT Exemplar]

Ans. Cracker on ignition produces sound due to the sudden formation of large amount of gas due to chemical reactions, such a reaction is called explosion.

Q. 4. What do you understand by fuel efficiency? [NCERT Exemplar]

Ans. The amount of heat produced by the complete combustion of unit mass of a fuel is known as fuel efficiency or calorific value.

Q. 5. Although wood has a very high calorific value, we still discourage its use as a fuel. Explain. [NCERT Exemplar]

Ans. (a) Wood produces lot of air pollution.

(b) Use of wood as fuel encourages cutting of trees leading to deforestation.

Q. 6. You are provided with three watch glasses containing milk, petrol and mustard oil, respectively. Suppose you bring a burning candle near these materials one by one, which material(s) will catch fire instantly and why? [NCERT Exemplar]

Ans. Petrol will catch fire instantly because it is highly inflammable. Mustard oil and milk has very high ignition temperature. So, they will not catch fire instantly.

Long Answer Questions

Q. 1. Manu was heating oil to fry potato chips. The cooking oil all of a sudden caught fire; he poured water to extinguish the fire. Do you think this action was suitable? If yes, why? If not, why not? In such a condition what should Manu have done?

[NCERT Exemplar]

Ans. No. Because water is not suitable for fires involving oil. Manu should have switched off the flame of the burner and put a lid on the frying pan. By doing this the contact between fuel and oxygen is cut off and the flame will go off.

Q. 2. What are the three essential requirements to produce fire? How fire extinguisher is useful for controlling the fire? **[NCERT Exemplar]**

Ans. Three essential requirements are:

- a. Fuel
- b. Air
- c. Heat to acquire the ignition temperature

A fire extinguisher is useful in controlling the fire in the following ways:

- a. It cools all the burning substances to a temperature below its ignition temperature.
- b. It cuts off the supporter of the burning substance, i.e., oxygen from the combustible substance.

Q. 3. Give two examples each for a solid, liquid and gaseous fuel along with some important uses. **[NCERT Exemplar]**

Ans. Types of fuels

Solid fuel – Coal, wood, etc.
Liquid fuel – Kerosene oil, petrol, etc.
Gaseous fuel – CNG, LPG, etc.

Uses

Coal – Cooking, etc.
Kerosene oil – Fuel for stoves, lamps, etc.
LPG – Fuel for industry, etc.

Q. 4. The calorific values of petrol and CNG are 45000 kJ/kg and 50000 kJ/kg, respectively. If you have vehicle which can run on petrol as well as CNG, which fuel will you prefer and why? **[NCERT Exemplar]**

Ans. We will prefer CNG to run the vehicle. This is because the calorific value of CNG is higher than that of petrol. Therefore CNG will be more economical. At the same time it produces the least air pollutants. Thus, it causes less pollution than petrol.

Q. 5. Forest fire produces a lot of air pollution. Write in brief about the reasons of forest fires.
[NCERT Exemplar]

Ans. a. At high temperature, sometimes dry grass catches fire which spreads throughout the forest.

b. Campfire may also be a reason.

c. Human negligence can also cause forest fires. A lighted cigarette left in the forest can also ignite a forest fire.

d. Lightning.

Hots (Higher Order Thinking Skills)

Q. 1. Sun produces its own heat and light. Is it also some kind of combustion?

Ans. No, it is not a kind of combustion, because heat and light produced in Sun is by nuclear reactions.