

### 1. List conditions under which combustion can take place.

**Soln:**

The burning of a substance in the presence of oxygen is defined as combustion.

The conditions under which combustion can take place are

- The presence of air or oxygen.
- The presence of fuel plays a significant role.
- Ignition temperature is maintained (It is defined as the substance that catches fire at its lowest temperature.)

### 2. Fill in the blanks.

(a) Burning of wood and coal causes \_\_\_\_\_ of air.

(b) A liquid fuel, used in homes is \_\_\_\_\_ .

(c) Fuel must be heated to its \_\_\_\_\_ before it starts burning.

(d) The fire produced by oil cannot be controlled by \_\_\_\_\_ .

**Soln:**

(a) Burning of wood and coal causes **Pollution** of air.

(b) A liquid fuel, used in homes is **Kerosene**.

(c) Fuel must be heated to its **Ignition Temperature** before it starts burning.

(d) The fire produced by oil cannot be controlled by **Water**.

### 3. Explain how the use of CNG in automobiles has reduced pollution in our cities.

**Soln:**

CNG played an important role in reducing pollution among automobiles for the following reasons

- CNG is comparatively a cleaner fuel.
- The CNG can be an alternative for diesel, petrol and propane/LPG.
- It usually contains a few undesirable gases than the other fuels mentioned above.

- The combustion of fuels like petroleum causes many unburnt carbon particles along with carbon monoxide, which leads to respiratory diseases.

#### **4. Compare LPG and wood as fuels**

**Soln:**

##### **Wood**

- It is considered as a traditional fuel used for both domestic and industrial purposes.
- Wood produces a lot of smoke which pollutes the atmosphere and cause respiratory diseases.
- The usage of wood to a large extent causes deforestation.
- The calorific value of wood ranges between 17000 to 22000 kJ/kg
- However, wood may be used as a furnace, stove or fireplace indoors while it is used for a campfire, furnace outdoors.

##### **LPG**

- The usage LPG (Liquefied petroleum gas) has replaced wood.
- It doesn't release smoke and other pollutants.
- It is a cleaner fuel.
- The fuel efficiency of LPG is more than that of wood.
- The calorific value of LPG is 55000 kJ/kg.
- Hence, LPG is the most preferred choice.

#### **5. Give reasons.**

**(a) Water is not used to control fires involving electrical equipment.**

**(b) LPG is a better domestic fuel than wood.**

**(c) Paper by itself catches fire easily whereas a piece of paper wrapped around an aluminium pipe does not.**

**Soln:**

**a)**

- Water is a good conductor of electricity.
- If added to an electrical fire, the water would just spread the electricity further.

- The person dousing the fire might get an electric shock

b)

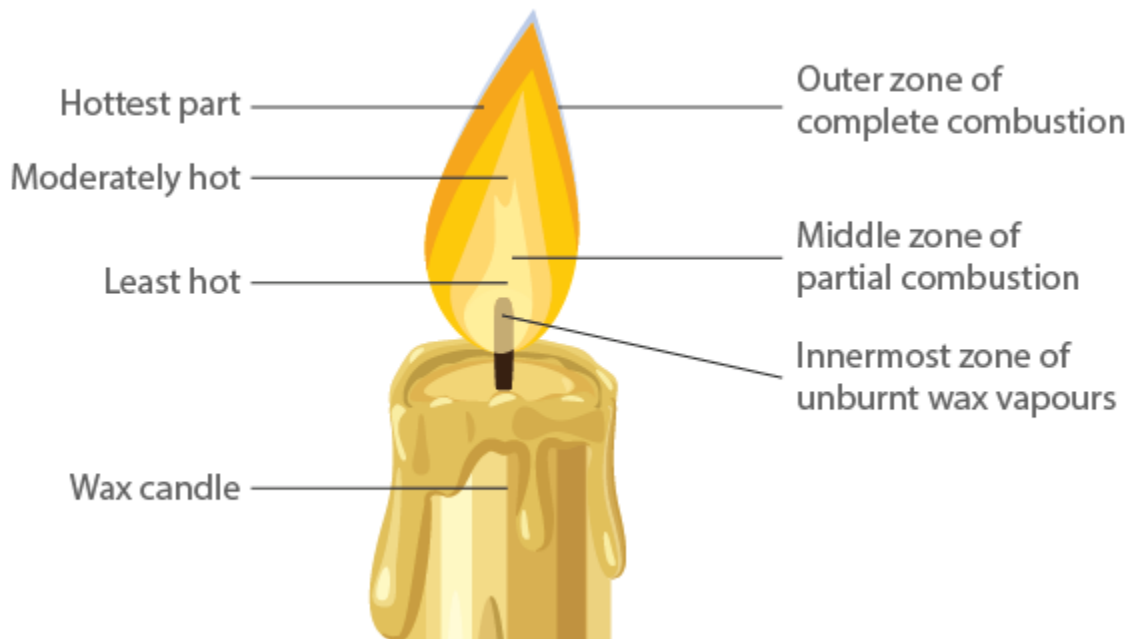
- LPG being a cleaner fuel than wood doesn't release smoke and other pollutants.
- Wood, on the other hand, releases a lot of smoke and fumes polluting the atmosphere causing pollution and leading to respiratory diseases.
- Hence, LPG is a better domestic fuel than wood.

c)

- The paper by itself catches fire easily because of its low ignition temperature.
- The piece of paper wrapped around an aluminium pipe doesn't catch fire because aluminium is a good conductor of electricity.
- While the paper wrapped around an aluminium pipe results in an increase in ignition temperature. So, there is a transfer of heat from paper to the aluminium pipe. Hence it doesn't catch fire.

### 6. Make a labelled diagram of a candle flame.

Soln:



### 7. Name the unit in which the calorific value of a fuel is expressed.

**Soln:**

Calorific value is defined as the energy contained in the fuel. It is expressed in the form kJ/kg

kJ=kilo joules and kg=kilogram

**8. Explain how CO<sub>2</sub> is able to control fires.**

**Soln:**

CO<sub>2</sub> is a non-combustible gas and extinguishes fire in two ways:

(i) It is heavier than oxygen and it covers the fire like a blanket and cuts off the contact between oxygen and fuel.

(ii) In cylinders, CO<sub>2</sub> is kept in the liquid form. When released, it expands enormously. This brings down the temperature of the fuel, which helps in controlling the fire.

**9. It is difficult to burn a heap of green leaves but dry leaves catch fire easily. Explain.**

**Soln:**

A heap of green leaves contains a lot of moisture in it, hence its ignition temperature is high. Therefore, it does not catch fire easily.

But dry leaves have no moisture content in it, hence its ignition temperature is low. Therefore, it catches fire easily.

**10. Which zone of a flame does a goldsmith use for melting gold and silver and why?**

**Soln:**

The goldsmith mainly uses non-luminous flame which is termed to be the outermost part of the flame. This part of the flame is used because the outermost flame undergoes complete combustion and is considered as the hottest part of the flame.

**11. In an experiment, 4.5 kg of a fuel was completely burnt. The heat produced was measured to be 180,000 kJ. Calculate the calorific value of the fuel.**

**Soln:**

Heat produced by 4.5 kg of fuel = 180000 kJ

Therefore, heat produced by  $1 \text{ kg of fuel} = \frac{180000}{4.5} \times 1$  kJ/kg

= 40,000 kJ/kg

Hence, the calorific value of the fuel is 40,000 kJ/kg.

**12. Can the process of rusting be called combustion? Discuss.**

**Soln:**

No, because rusting is an exothermic process as heat is liberated during rusting. On the other hand, combustion is a chemical process in which a substance reacts with oxygen to release energy in the form of heat or light.

**13. Abida and Ramesh were doing an experiment in which water was to be heated in a beaker. Abida kept the beaker near the wick in the yellow part of the candle flame. Ramesh kept the beaker in the outermost part of the flame. Whose water will get heated in a shorter time?**

**Soln:**

The water placed in the outermost part of the flame will be heated in a short time since it is a non-luminous flame and is regarded as the hottest part of the flame. So Ramesh's beaker will be heated first. However, Abida who placed the beaker in the luminous flame (yellow flame) is comparatively less hot.

## **Access Answers to NCERT Exemplar Class 8 Science Chapter 7 – Conservation of Plants And Animals**

### **Multiple Choice Questions**

**1. Wild buffalo is an endangered species because**

- (a) its population is diminishing**
- (b) it has become extinct**
- (c) it is found exclusively in a particular area**
- (d) its poaching is strictly prohibited**

**Soln:**

The answer is (a) its population is diminishing

**Explanation:**

Endangered species are those whose population is decreasing at an alarming rate and they may face extinction in the near future.

**2. Which one of the following changes may occur due to desertification?**

- (a) Increased chances of floods.
- (b) Conversion of fertile land into a desert.
- (c) The decrease in atmospheric temperature.
- (d) Increase in water holding capacity of the soil.

**Soln:**

The answer is (b) Conversion of fertile land into a desert.

**Explanation:**

Soil is carried away by the wind when there are no trees as there will be no roots to hold onto the soil. Thus topsoil erodes out which will turn the land to desert.

**3. Which one of the following statements is true about a Biosphere Reserve?**

- (a) It is a protected area where only endemic species live.
- (b) It is meant only for the conservation of plants and animals.
- (c) It is meant to conserve both the biodiversity and the culture of that area.
- (d) There are no other protected areas within its limits.

**Soln:**

Answer is (c) It is meant to conserve both, the biodiversity and the culture of that area.

**Explanation:**

The biosphere reserve is the protected part of the land covered with forests. It is meant for the conservation of wildlife, biodiversity and traditional lifestyle of tribals.

**4. The place meant for the conservation of biodiversity in their natural habitat are**

- (i) Zoological garden
- (ii) Botanical garden
- (iii) Wildlife sanctuary
- (iv) National park

- (a) i & ii;
- (b) ii & iii;
- (c) iii & iv;
- (d) i & iv

**Soln:**

**Answer is (c) iii & iv;**

**Explanation:**

In botanical garden and zoological parks species are protected outside their natural habitat and its ex-situ conservation. On the other hand, Wildlife sanctuary and National park are in-situ conservation where conservation of biodiversity occurs in their natural habitat.

**5. Which one of the following statements is true about endemic species?**

- (a) They are found exclusively in a specific habitat.
- (b) Endemic species can never become endangered.
- (c) They are found only in zoos and botanical gardens.
- (d) They are not affected by the destruction of their habitat.

**Soln:**

Answer is (a) They are found exclusively in a specific habitat.

**Explanation:**

Endemic species are those which are found exclusively in a specific habitat. Endemic species get extinct when habitat is destroyed by human activities or by the introduction of new species is introduced to the habitat.

**. Answer in brief.**

- (a) Why should we conserve biodiversity?
- (b) Protected forests are also not completely safe for wild animals. Why?

**(c) Some tribals depend on the jungle. How?**

**(d) What are the causes and consequences of deforestation?**

**(e) What is Red Data Book?**

**(f) What do you understand by the term migration?**

**Soln:**

(a) The number and variety of various life forms such as plants, animals and micro-organisms in the area are called Biodiversity. Both plants and animals have a mutual dependence on each other for their survival. As they are related to one another, destruction of one will automatically destroy the other. Hence, biodiversity has to be conserved in order to maintain nature's balance.

(b) People who live near the forests depend on the resources of the forests in order to fulfil their day-to-day needs. Therefore, it is not safe for animals living in protected forests. The animals would be threatened by the presence of the human population. This results in the killing of wild animals and selling their products for huge sums of money.

(c) The forests provide food, fodder and other resources to the tribal people. It is inevitable for them to depend on forests and their resources for everyday needs.

(d) Causes of deforestation:

There are a lot of causes for deforestation. A few of them are listed below.

I. In order to accommodate the ever-expanding urban population, forest areas are often cleared and converted into lands for various uses.

II. For agricultural activities like crop cultivation and cattle grazing, forest lands are cleared.

III. Firewood is a major product from the forests and it is one of the main reasons for cutting the trees on a large scale.

Consequences of deforestation:

There are a lot of fatal consequences caused by deforestation. A few of them are listed below.

1. Soil erosion
2. Loss of Biodiversity
3. Floods



4. Droughts
5. Global warming as a result of climate change
6. Disruption of the water cycle

(e) Red data book is basically a sourcebook which has an international list of all plant and animal species which are endangered, that is, on the verge of extinction. The International Union for Conservation of Nature and Natural resources (IUCN) maintains the books and adds/ removes the names of the species by conducting a comprehensive survey.

(f) The movement of an organism or a group of organisms from its natural habitat to another place on a standard basis at a particular time of each and every year is known as migration. The organisms do so in order to avoid uninhabitable conditions of climate or for the process of breeding.

**6. In order to meet the ever-increasing demand in factories and for shelter, trees are being continually cut. Is it justified to cut trees for such projects? Discuss and prepare a brief report.**

**Soln:**

No. Cutting trees in order to meet the ever-growing demands of the human population is not at all justified. There are a vast number of organisms like wild animals, insects, and birds living in the forests. The forests provide good quality air for both animals and humans. This is because of the process of plants respiration by which, they consume the harmful carbon dioxide and give out good quality Oxygen. Thus, keeping greenhouse gases and global warming under check. The roots of the flora of the forests help in preventing soil erosion. Natural Calamities such as floods and droughts could also be prevented by their presence. They help in increasing the soil's fertility and conserving the biodiversity of the ecosystem.

Overutilization of forests and its resources by cutting a large number of trees in order to satisfy the demands of the ever-increasing human population, leading to many long-term problems like

- Soil erosion
- Greenhouse effect
- Global warming
- Floods
- Droughts

Besides the above-listed problems, the effects of large-scale deforestation will be leaving an everlasting mark on the face of human civilization. The balance of nature is disturbed by the destruction of trees. Hence, it is of utmost priority and importance to conserve forests.

**7. How can you contribute to the maintenance of green wealth of your locality? Make a list of actions to be taken by you.**

**Soln:**

I can take care of the green cover of my locality by growing plants in my locality. I shall motivate the people of my neighbourhood to plant more trees and take care of the existing trees by creating awareness about the importance of plant life in an ecosystem. In order to make this possible, I would initiate the proceedings and organize weekly events on the same. Creating awareness among the children and youth would be of top priority as they will easily understand the issues that we are facing. Planting new trees is as important as looking after the existing ones. So, my volunteers and I would water the plants and trees on a regular basis.

**8. Explain how deforestation leads to reduced rainfall.**

**Soln:**

Removal of trees and plant life from a particular area for the construction of industries, agriculture and other purposes is termed as Deforestation. Photosynthesis in plant life, takes place by the absorption of CO<sub>2</sub> from the earth's atmosphere. When the plant life is destroyed, the Carbon Dioxide levels in the atmosphere will increase drastically leading trap of heat radiation which causes global warming. This rise in temperature will affect the water cycle. Disturbance in the water cycle will lead to a chain of events and in the end, the rainfall pattern changes and results in droughts.

**9. Find out about national parks in your state. Identify and show their location on the outline map of India.**

**Soln:**

Periyar National park located in the state of Kerala.



**10. Why should paper be saved? Prepare a list of ways by which you can save paper.**

**Soln:**

If one ton of clean white paper is to be produced, seventeen full-grown trees are cut down. Trees play a major role in maintaining a balance in nature. So, it is essential to save paper in order to protect the trees and avoid the impact of the loss of trees on the living organisms that depend on these trees.

Ways to save paper:

- Collection and recycling of used paper.
- Using both sides of a paper for writing.

- Spreading awareness about the importance of paper among school children and youth.
- Intelligent and proper use of paper.

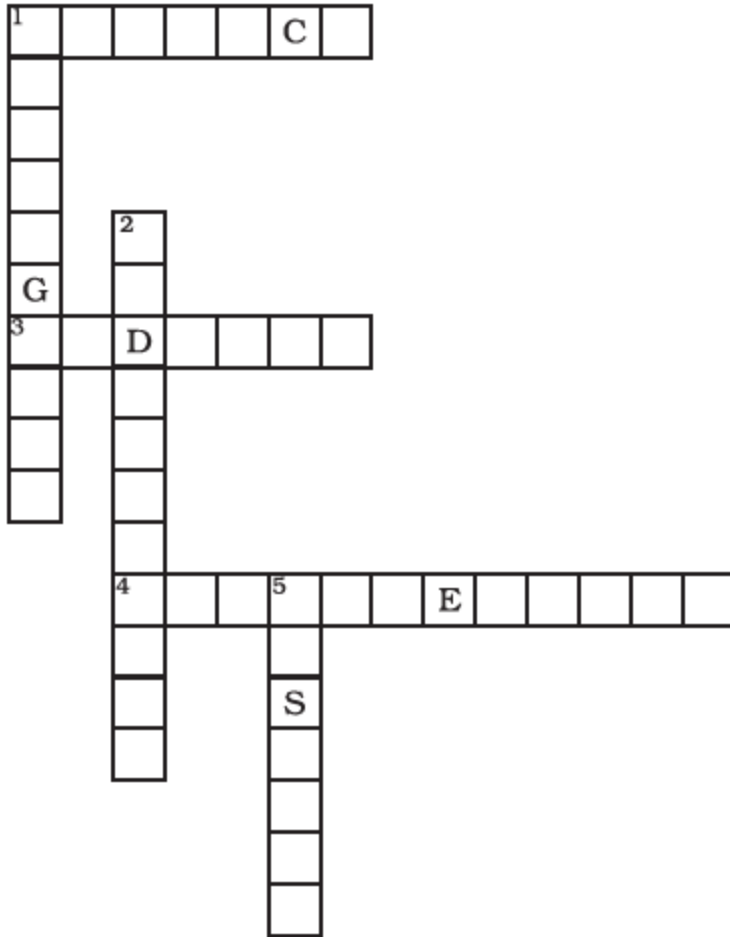
**11. Complete the word puzzle.**

**Down**

1. Species on the verge of extinction.
2. A book carrying information about endangered species.
5. Consequences of deforestation.

**Across**

1. Species which have vanished.
3. Species found only in a particular habitat.
4. Variety of plants, animals and microorganisms found in an area.



Down

1. Endangered
2. Red Data Book
3. Deserts

Across

1. Extinct
2. Endemic
3. Biodiversity

