CBSE Class VIII Science
NCERT SOLUTION
Chapter-6
Combustion and flame

1. List conditions under which combustion can take place.

Ans. Conditions under which combustion can take place are as follows:
a.Air or any other supply of oxygen.
b.Heat, to reach the,ignition temperature.
c.Fuel, maybe solid ,liquid or gas.

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2. Fill in the blanks.
(a) Burning of wood and coal causes _____ of air.
(b) A liquid fuel, used in home is _____.
(c) Fuel must be heated to its _____ before it starts burning.
(d) Fire produced by oil cannot be controlled by _____.

Ans. Fill in the blanks.
(a) Burning of wood and coal causes **pollution** of air.
(b) A liquid fuel, used in home is **LPG**.
(c) Fuel must be heated to its **ignition temperature** before it starts burning.
(d) Fire produced by oil cannot be controlled by **water**.

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

Ans. CNG produces harmful products like sulphur dioxide,oxides of nitrogen etc. in very small amounts as compared to petrol and diesel. That is why pollution in our cities is reduced by using CNG. CNG is a cleaner fuel.

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4. Compare LPG and wood as fuels.

Ans. LPG burns easily and produces more heat in comparison to wood. Besides, it is a clean fuel, it does not produce fume and ashes as wood do. LPG can be stored and transported

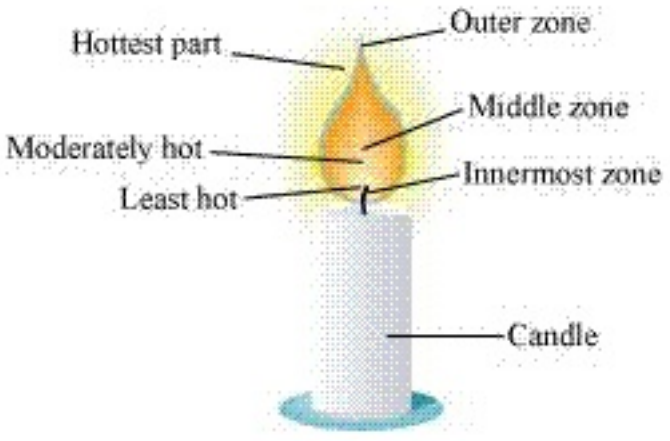
easily and conveniently.

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.

Ans. (a) Water is not used to control fire produced by electrical equipment because water is a good conductor of electricity and may result in electric shock to the person extinguishing the fire.
(b) LPG is a substance which is readily available. It is cheaper than wood and burns easily in air at moderate rate. It does not produce fume and ashes as wood do. Moreover LPG can be stored and transported easily and conveniently.
(c) Paper catches fire easily because of its low ignition temperature, but when it is wrapped around an aluminium pipe, the ignition temperature does not meet as the heat supplied is transferred to the aluminium pipe leaving the paper unburnt.

6. Make a labelled diagram of candle flame.

Ans.



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

Ans. The calorific value of a fuel is expressed in kilojoule per kg (kJ/kg).

8. Explain how CO_2 is able to control fires.

Ans. Carbon dioxide being heavier than oxygen covers the fire like a blanket. Since the contact between fuel and oxygen is cut off, the fire is controlled. Moreover it lowers down the temperature of the fuel. The added advantage of carbon dioxide is that in most cases it does not harm the electrical appliances.

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

Ans. Green leaves contain lot of water. So, when we try to burn green leaves, water contained in the leaves cools the combustible materials, so that its temperature is brought below its ignition temperature. This prevents the burning of green leaves.

In case of dry leaves, water is absent in them so burning process start as the temperature is raised above the ignition temperature and the leaves catch fire easily.

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

Ans. The goldsmith uses the outermost zone of a flame with a metallic blow pipe for melting gold and silver.

The flame in outermost zone has the highest temperature and provides sufficient amount of heat to melt gold and silver.

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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.

Ans. Calorific value of a fuel = Total heat produced/total mass burnt.

Here, mass of fuel = 4.5 kg.

Heat produced = 180,000 kJ.

Therefore, calorific value of fuel = 180,000/4.5kg = 40,000 kJ/kg.

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

Ans. In rusting,iron using oxygen and water, gets oxidized and is rusted out. It is a slow process which does produce heat at a very slow rate. It includes iron as a fuel,oxygen and also produces heat much like a combustion process. So the process of rusting is somewhat similar to combustion.

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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?

Ans. The water of Ramesh's beaker will get heated in a shorter time because the outermost part of the flame is the hottest.
