



CLASS - VIII SCIENCE NOTES AUGUST

4. Combustion and Flame

I. Assertion and Reasoning Type Questions:

Note: Mark the correct choice as.

OPTION A - Both assertion and reason are true and reason is the correct explanation of assertion.

OPTION B - Both assertion and reason are true but reason is not the correct explanation of assertion.

OPTION C - Assertion is true but reason is false.

OPTION D - Assertion is false but reason is true.

1. Assertion (A): Alcohol and petrol can be used as household fuels for cooking.

Reason (R): They are highly inflammable substances.

Ans: (d) A is false but R is true.

2. Assertion (A): Charcoal does not produce a flame.

Reason (R): Charcoal does not vaporise.

Ans: (a) Both A and R are true and R is the correct explanation of A.

II. Answer the following Questions:

1. List conditions under which combustion can take place.

Combustion can take place in the presence of:

- (a) a combustible substance.
- (b) oxygen, that is, the supporter of combustion.
- (c) attainment of ignition temperature of the substance.

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

The use of CNG in automobiles has reduced pollution in our cities as it is a quality fuel and has some benefits:

- (a) It gives out less carbon dioxide gas, carbon monoxide gas, sulphur dioxide and nitrogen dioxide, which is beneficial as they play crucial role in global warming and acid rain.
- (b) It leaves behind no residue after its combustion.

3. Compare LPG and wood as fuels.

LPG	Wood
(i) It does not cause pollution on combustion.	(i) It pollutes air on its combustion.
(ii) No smoke is produced.	(ii) It produces smoke.
(iii) It is a liquid fuel.	(iii) It is a solid fuel.

(iv) It has more calorific value (55000 kJ/kg).	(iv) It has less calorific value (17000 kJ/kg).
(v) It can be easily transported, as it is stored in cylinders.	(v) It can't be transported easily like LPG fuels.

4. Give reasons.

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

Since water is a good conductor of electricity, it may result in electric shocks to the person trying to extinguish fire.

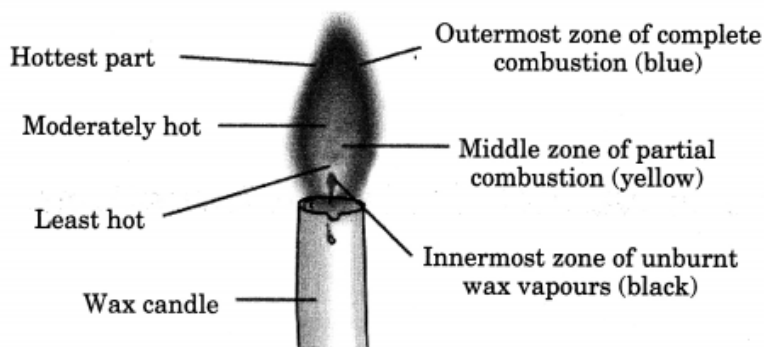
(b) LPG is a better domestic fuel than wood.

LPG is better domestic fuel than wood because it does not produce gases, nor does it leave any residue behind. Moreover, it has more calorific value than wood.

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

As its ignition temperature is low, the paper by itself catches fire easily. But a piece of paper wrapped around an aluminium pipe does not catch fire easily, as the heat being given gets absorbed by the aluminium pipe and the piece of paper does not get its ignition temperature.

5. Make a labelled diagram of a candle flame.



A candle flame

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

The unit in which the calorific value of a fuel is expressed is kilojoules per kilogram (kJ/kg).

7. Explain how CO₂ is able to control fires.

As CO₂ is heavier than oxygen, it forms a blanket around fire, because of which the supply of air is stopped. Moreover, it brings down the temperature of the burning substance. In these ways, it plays a significant role in controlling fire.

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

The green leaves hold some amount of water, so its ignition temperature gets increased and it does not burn easily. On the other hand, dry leaves are waterless, so they catch fire easily (having low ignition temperature).

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

A goldsmith uses the outermost zone of a flame, which is non-luminous, to melt gold and silver as it is the hottest zone of the flame, having more temperature.

10. 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.

$$\text{Calorific value of a fuel} = \frac{\text{Heat Produced}}{\text{Amount of fuel}}$$

$$= 180000/4.5 \text{ kJ/kg}$$

$$= 40,000 \text{ kJ/kg.}$$

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

The process of rusting emits heat during the formation of its oxide. So we can call the process of rusting as slow combustion.

12. 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?

The water which was put by Ramesh will get heated in a shorter time; because he had put it nearer to the hottest zone of the flame.

5. Conservation of Plants and Animals

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OPTION D - Assertion is false but reason is true.

1. Assertion (A): Biosphere reserves, national parks and wildlife sanctuaries are the protected areas for plants and animals.

Reason (R): Above areas have different nature and habitat.

Ans: (c) A is true but R is false.

2. Assertion (A): Endemic species of plants and animals are found easily

Reason (R): Indian giant squirrel and flying squirrel are endemic species.

Ans: (d) A is false but R is true.

II. Answer the following Questions:

1. Differentiate between the following.

(a) Wildlife sanctuary and biosphere reserve

Wildlife sanctuary	Biosphere reserve
The area reserved in a forest for the protection of wild animals.	The area meant for the protection or conservation of the biodiversity. It also helps in maintaining the culture of that area.

(b) Zoo and wildlife sanctuary

Zoo	Wildlife sanctuary
A place where animals are protected in an artificial habitat, for an exhibition.	A protected area where animals live in their natural habitat.

(c) Endangered and extinct species

Endangered species	Extinct species
The species of animals whose numbers are diminishing to such a level that they might face extinction.	The species of animals whose number is zero because of changes in their habitat and other calamities.

(d) Flora and fauna

Flora	Fauna
The plants which are found in a particular area; e.g. Jamun, sal, etc.	The animals which are found in a particular area; e.g., leopard, cheetah, elephant, etc.

2. Discuss the effects of deforestation on the following.

(a) Wild animals

Trees are the habitats as well as sources of food for the wild animals. Deforestation leads to the destruction of the natural habitats of wild animals.

(b) Environment

Deforestation increases the temperature and pollution level of the environment. With the increase in the carbon dioxide level and a decrease in the oxygen level, it gives rise to global warming. It also lowers the level of ground water. Moreover, deforestation decreases the soil fertility and so, increases the chances of natural calamities.

(c) Villages (Rural areas)

The decline in rainfall, the decrease in soil fertility, and the chances of natural disaster affect the village life.

(d) Cities (Urban areas)

Deforestation result in global warming. It also results in the increase in the level of pollution. Hence, deforestation affects the life in cities.

(e) Earth

Deforestation decreases the fertility of soil. It changes the physical properties of soil. All these changes result in desertification.

(f) The next generation

Deforestation will majorly affect the life of next generation. The next generation will face problems at every step. Climatic conditions will be adversely affected. There will be scarcity of food and clean environment.

Next generation won't be able to see most of the animal species due to habitat loss.

3. What will happen if.

(a) we go on cutting trees.

If we go on cutting trees, then:

- the temperature will increase to a greater extent.
- the chances of natural disaster to occur will increase.
- the water cycle will get disturbed.

(b) the habitat of an animal is disturbed.

If the habitat of an animal is disturbed, then:

- the animals will lose their natural habitat and will reach the level of being endangered.
- most of the animals may be forced to invade places meant for human living in search of food and shelter.

(c) the top layer of soil is exposed.

If the top layer of soil is exposed, then:

- the exposed layer will lose all its nutrients, especially the hummus.
- the water holding capacity of soil will decrease.
- desertification will take place.

4. Why should we conserve biodiversity?

The variety in life existing on the earth, their inter-relationships, and their relationships with the environment is referred to as biodiversity. We should conserve biodiversity so as to maintain the food chain. The disturbance in the food chain may affect the whole ecosystem.

5. Protected forests are also not completely safe for wild animals. Why?

Since capturing and killing of animals by poachers is still rampant in protected forests and areas, so they are not safe for wild animals.

6. Some tribals depend on the jungle. How?

Some tribes depend on the jungle for the fulfillment of their basic needs of life, such as food, medicine, clothing, shelter, etc.

7. What are the causes and consequences of deforestation?

The causes of deforestation may be the following:

- Natural causes like forest fires, droughts, etc.
 - Building factories and houses.
 - Procuring land for cultivation.
 - Making furniture and using wood as fuel.
- The consequences of deforestation are:
- Natural calamities like floods, etc.

- Increase in the temperature of the earth, i.e., global warming.
- Change in the physical properties of soil.
- A decrease in groundwater level.
- Extinction of many flora and fauna.

8. What is Red Data Book?

Red Data Book is a sourcebook which keeps records of all endangered plants and animals.

9. What do you understand by the term migration?

Migration means the movement of a species from its own habitat to some other place during a certain period in a year for breeding or to overcome some climatic conditions.

10. 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.

It's not justified to cut trees just to fulfill our needs. Trees are known as 'the lung of the earth'. They are the habitat of many living organisms, including animals. They give us oxygen, and maintain the O₂-CO₂ balance as well. They firmly bind the soil and hence prevent soil erosion. They also reduce the chances of natural disasters like floods and droughts. They help conserve our rich biodiversity. The cutting of trees causes an increase in the carbon dioxide (CO₂) level, which results in global warming. Moreover, it causes soil erosion, floods, the greenhouse effect, etc. Hence, trees must be protected.

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

By taking up the following actions, I can contribute to the maintenance of green wealth of my locality by:

- Planting saplings and trees.
- Not throwing the garbage on the streets.
- Forbidding others to cut trees.
- Making people aware of the significance of a clean and green environment.
- Watering the plants regularly and taking proper care of them.
- Reusing and recycling paper to save trees, energy, and water.

12. Explain how deforestation leads to reduced rainfall.

Trees give out a huge amount of water in the form of water vapour during transpiration. The reduction of water vapour affects cloud formation and thus, results in less rainfall.

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



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

A large number of trees can be saved by saving paper. This will also save water that is used to manufacture paper. Moreover, the harmful chemicals used in papermaking will show their least effects on human beings and other organisms.

Some ways to save paper are the following:

- recycling of paper.
- economical use of paper.
- paper should not be burnt.