

6. Combustion and Flame

1. Choose the correct option.

a) The products of complete combustion are:

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|--------------------------------|------------------------------|
| i) carbon dioxide and soot | ii) carbon dioxide and water |
| iii) carbon monoxide and water | iv) carbon monoxide and soot |

ans: carbon dioxide and water

b) Which of the following has a high calorific value?

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|-------------|------------|
| i) Kerosene | ii) Biogas |
| iii) LPG | iv) Petrol |

ans: LPG

c) Unburnt carbon particles in air cause:

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|-----------------------|--------------------------|
| i) Stomach infections | ii) Respiratory problems |
| iii) Kidney problems | iv) Obesity |

ans: Respiratory problems

d) Acid rain is caused by the oxides of:

- | | |
|--------------------------|---------------------------|
| i) sulphur and nitrogen | ii) sulphur and carbon |
| iii) carbon and nitrogen | iv) phosphorus and carbon |

ans: sulphur and nitrogen

2. Give two examples for each of the following: (R)

a) Non-combustible substances

ans: glass, clay, stones

b) Solid fuels

ans: wood, cow dung, charcoal

- c) Substances that show rapid combustion

ans: match sticks, LPG

(answers may vary, accept all correct examples)

3. State whether the following statements are true or false. Correct the false statements.

- a) Carbon dioxide is heavier than oxygen.

ans: True

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- b) Fuel, water and heat are three essential requirements for combustion.

ans: False.

Fuel, oxygen and heat are the three essential requirements for combustion.

- c) Increase of nitrogen gas in the atmosphere has led to 'Global warming'.

4. Assertion and Reason type questions:

In following questions, the Assertion and Reason have been put forward. Read the statements carefully and choose the correct alternative from the following:

- (A) Both Assertion and Reason are true and the Reason is a correct explanation of the Assertion.
(B) Both Assertion and Reason are true but the Reason is not a correct explanation of the Assertion.
(C) Assertion is true but the Reason is false.
(D) Both Assertion and Reason are false.

- a) Assertion: Coal burns without a flame.

Reason: Substances that do not vaporise on burning do not produce a flame.

ans: (A) Both Assertion and Reason are true and the Reason is a correct explanation of the Assertion.

- b) Assertion: Removing any wood or dry grass present around a bonfire causes it to extinguish.

Reason: Reduction in oxygen supply smothers the fire.

ans: (B) Both Assertion and Reason are true but the Reason is not the correct explanation of the Assertion.

5. Answer in brief.

- a) Food is fuel for the body. Justify the statement.

ans: Food is fuel for our body as it undergoes combustion and releases energy that helps our body to function.

- b) State any four characteristics of a good fuel.

ans: Following are the characteristics of a good fuel:

- High calorific value
 - Moderate ignition temperature
 - Low moisture content
 - Products of combustion are not harmful
 - Low cost and easy availability
 - Easy to transport
 - Controllable combustion
 - Low storage cost and convenient to store
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6. Give reasons for the following statements.

- a) Kerosene catches fire faster than wood.

ans: Kerosene catches fire faster than wood because the ignition temperature of kerosene is lower than that of the wood.

- b) A person whose clothes have caught fire is covered with a thick blanket.

ans: A person whose clothes have caught fire is covered with a thick blanket to cut off the supply of air, i.e., the supporter of combustion. Hence the burning stops.

7. The diagram given below shows an experiment performed by Meera. She lit a candle and let it burn for some time. She then placed a tumbler over the candle.



- a) What will she observe?

ans: The candle flame flickers and produces smoke. After a while it extinguishes.

- b) What can she conclude from this experiment?

ans: On placing an inverted tumbler over a burning candle, the flame extinguishes because of non-availability of oxygen. /Oxygen is necessary for burning.

8. Reena was heating oil to fry potato chips. All of a sudden, the cooking oil caught fire. She poured water to extinguish the fire.

- a) Do you think the action taken by Reena is an appropriate one? Justify your response.

ans: Pouring water to extinguish the fire due to oil was not a suitable action. It is because water is heavier than oil and so it sinks below the oil and the oil keeps burning on the top./oil will float on water as they are lighter than water, hence will not be effective in putting out the fire

- b) Suggest some other ways to stop a fire due to burning oil.

**ans: By using a fire extinguisher.
By covering the pan with a lid to cut off the air supply.**

- c) Name the type of fire extinguisher used for fires involving inflammable substances.

ans: Carbon dioxide fire extinguisher is the best extinguisher that can be used for fires involving inflammable substances like oil.

