

## 07. COMBUSTION, FUELS AND FLAME

### Questions and Answers

**1. Give four examples for combustible substances.**

A. Examples for combustible substances : Wood, Petrol, Spirit, CNG, Kerosene, Diesel, LPG, Paper, Magnesium, Dry grass

**2. Give four examples for non combustible materials.**

A. Examples for non combustible substances : Water, Cement, Asbestos, Air, Soil

**3. Why should not we store spirit or petrol near our living place ?**

A. Spirit and petrol are volatile substances. They turn into gas at low temperature. Also the ignition point is less to them. They can burn quickly and cause uncontrolled fire accidents. So we should not store spirit or petrol near our living place.

**4. Give an example of a good fuel. How do you choose that fuel ? Explain.**

A. How can we say that a fuel is a good fuel ? We have to consider some factors while choosing a good fuel like Usage, Fuel efficiency, Availability, Reasonable price, Easy to handle, Safe to store, Easy to ignite, Easy to put off, High calorific value. For cooking purpose LPG may be better fuel. For Rockets Hydrogen is the best fuel.

**5. The oil fires should not be sprayed with water. Why ?**

A. The oil fires should not be sprayed with water. Because water is not suitable for fires involving oil and petrol. As water is denser than oil, it sinks bottom and the oil keeps burning at the top.

**6. What precautions are to be taken while pouring water on fire ?**

A. Precautions to be taken while pouring water on fire :

- (i) We pour water on fire with pressure.
- (ii) We must not spray water on fire caused by electricity.
- (iii) We must not spray water on fire if oils are involved in the fire.
- (iv) We have to wear cotton clothes, helmet while controlling fires as per availability.
- (v) We spray water on fire by maintaining certain distance.

**7. Why a wick is not used in a gas burner ?**

A. A wick is used to move a liquid up and turns to gas for burning. Wick is generally used in lamps like spirit lamp or Kerosene lamp. In a gas burner, no liquid is there. It is needed to move the gas with pressure. So no wick is used in gas burners.

**8. Water is not used to control fires involving electrical equipment. Why ?**

A. Water is not used to control fire involving electrical equipment. Because Water can conduct electricity and it may harm those who are trying to control fire.

**9. It is difficult to burn a heap of green leaves but not a heap of dry leaves. why ?**

A. Dry leaves have low ignition temperature. It catches fire easily. Green leaves contain a small amount of water in them. The ignition point of green leaves is high. So it is difficult to burn a heap of green leaves than dry leaves.

**10. Give supporting arguments for both the statements.**

**(i) Fire is useful (ii) Fire is harmful**

**A. (i) Fire is useful :** (i) It is useful for cooking in daily life.

(ii) It provides lighting.

(iii) It provides heat in winter season.

(iv) It is useful in the making of ornaments.

**(ii) Fire is harmful :** (i) Generally fire causes air pollution.

(ii) The smoke from fire causes health problems.

(iii) Uncontrolled fire in forests causes death of animals and pollution.

(iv) Fire involving plastics releases harmful gases.

**11. In a few years the fuels on earth will be exhausted. Think, what would happen to human civilization ?**

**A.** If fuels on earth will be exhausted, then...

(i) We can't cook food items. (we may use Solar energy as alternative.)

(ii) We are unable to use vehicles. (we may use Solar energy as alternative.)

(iii) There will be no electricity at all. (we may use Solar energy as alternative.)

(iv) The cosmetics, so many medicines obtained from Petroleum are not manufactured.

**12. What would happen if oxygen stops to support combustion ? – Make a guess.**

**And if it is the situation for what other works fuels are useful ?**

**A.** If oxygen stops to support combustion, then ...

(i) We can't cook food items.

(ii) No fire be produced on earth.

(iii) No use of fuels without oxygen support.

(iv) All industries and their works are in vain.

**13. Use of more fuels in our daily life causes air pollution and it is harmful to human being and the other life on earth. Suggest some remedies to avoid this.**

**A.** Use of more fuels in our daily life causes air pollution and it is harmful to human being and the other life on earth.

Some remedies for this situation are ...

(i) We have to take care towards less consumption of fuels.

(ii) The gases released by factories should be filtered.

(iii) Attach smoke filters for vehicles is needed.

(iv) We have to use CNG, Solar energy in the place of Petroleum.

(v) We have to use LPG only for cooking purpose. Don't use wood, dung cakes.

(vi) Usage of out dated vehicles should be avoided.

**14. Let us assume that you are on the moon. If you try to focus sun light on a paper using magnifying glass, does the paper catch fire? Or not ? Why ?**

**A.** The paper doesn't catch fire. Because burning of paper needs oxygen and there is no atmosphere on the Moon.

**15. Can you heat water in a paper vessel ? How is it possible ?**

**A.** If we heat only paper cup, it will burn as the ignition point of paper is less. If we keep a water cup on a burner, the cup doesn't burn. Because the heat provided to cup absorbed by the water and water can boil. Water prevents the paper cup to reach its ignition temperature.

**16. “Is combustion possible without the supply of oxygen ?” – Write a note.**

**A.** Burning of substances in the presence of Oxygen is called Combustion. Without Oxygen, burning is not possible. Because Oxygen is only the gas that helps a substance in burning.

**17. Explain giving reasons : In which of the following situations water will get heated in a shorter time ?**

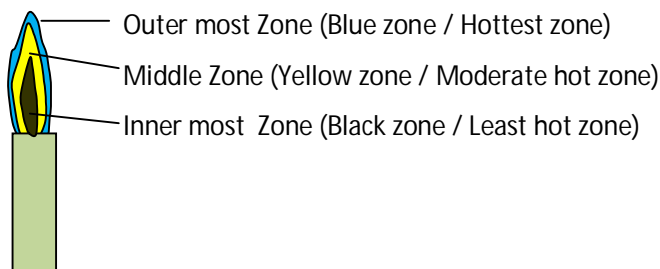
**(a) Srikar kept water beaker near the wick in the yellow part of a candle flame.**

**(b) Sonu kept water beaker in the outermost part of the candle flame.**

**A.** Candle flame has three zones. Outermost zone (Blue zone) has more heat energy than Middle Zone (Yellow zone). So The beaker kept by Sonu in the outermost zone takes shorter time to heat.

**22. Draw the diagram of candle flame and label all the zones.**

**A.**



**23. Where do you find spontaneous combustion and rapid combustion in your daily life ?**

**A.** In Our daily life, we find spontaneous combustion at...

- (i) Forest fire catches without any external cause.
- (ii) Fire due to electric short circuit is an example for spontaneous combustion.
- (iii) Fire catches in burial ground due to burning of Phosphorous.

In Our daily life, we find rapid combustion at...

- (i) Burning of Camphor.
- (ii) Fire accidents at Petrol bunks.
- (iii) Fire catches by spirit lamp.

**24. How do you organize your daily works with fuels to conserve bio-diversity ?**

**A.** To conserve Bio-diversity...

- (i) I cook food using LPG only.
- (ii) Usage of vehicles for short distances is avoided.
- (iii) I can make my vehicles servicing frequently.
- (iv) I will use bicycle to go to school, market, and etc.,
- (v) Planting trees reduce Pollution.

**25. How do you feel about “Fuels have become a part of human life.” ?**

**A.** Fuels have become a part of Human life. Because...

- (i) Most consuming fuel is Petroleum.
- (ii) Most of the vehicles run by Petrol, Diesel.
- (iii) Most of the cosmetics are manufactured by Petroleum.
- (iv) Without fuels, we can't cook.
- (v) Without fuels, we can't run vehicles.
- (vi) Without fuels, we can't run industries.

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