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# Combustion and Flame

## ORAL QUESTIONS

**A. Answer these questions orally.**

1. What is the minimum temperature at which a substance catches fire called?
2. In which zone of a candle flame do the wax vapours burn completely?
3. Which phenomena can lead to the melting of polar ice-caps which may cause the sea level to rise causing floods?
4. Should the ignition temperature of a fuel be above or below the room temperature?
5. What is the other name for the outer zone of a candle flame?

**B. Rewrite the following statements correctly.**

1. A good fuel should have a low calorific value.
2. All fuels give equal amount of energy.
3. All substances have same ignition temperature.

## PUZZLE/QUIZ

**C. Find at least seven terms that are related to Combustion and Flame.**

| C | P | N | A | I | O | Y | P | Q | M | Z | N | G |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| A | O | P | M | K | Z | R | E | J | A | V | W | L |
| R | N | M | S | L | X | G | I | N | I | M | F | O |
| B | O | B | B | Q | R | H | Z | G | C | F | Y | B |
| O | O | H | F | U | E | L | A | L | D | E | X | A |
| N | C | P | M | E | S | L | K | Y | R | X | H | L |
| D | Q | Q | R | U | T | T | D | E | A | F | E | W |
| I | B | J | S | F | C | K | I | L | I | W | W | A |
| O | E | X | P | L | O | S | I | O | N | K | F | R |
| X | D | D | R | A | Z | J | E | D | N | R | U | M |
| I | T | F | B | M | J | C | C | V | T | P | S | I |
| D | P | I | B | E | S | R | V | T | G | G | H | N |
| E | C | A | N | D | L | E | F | L | A | M | E | G |

## CLASS TEST

### D. MCQ– Tick (✓) the correct option.

1. Which of these is a noncombustible substance?
   (a) Stone ☐ (b) Paper ☐
   (c) Petrol ☐ (d) Kerosene ☐
2. Which of these is necessary for combustion to occur?
   (a) A combustible substance ☐
   (b) Ignition temperature ☐
   (c) Presence of air or oxygen ☐
   (d) All of these ☐
3. Which of these is helpful in order to fight fire?
   (a) Removing the combustible substance ☐
   (b) Cutting off the supply of air ☐
   (c) Cooling down the combustible substance below its ignition temperature ☐
   (d) All of these ☐
4. The inner zone of a candle is also known as the
   (a) Nonluminous zone ☐
   (b) Luminous zone ☐
   (c) Dark zone ☐
   (d) Light zone ☐
5. The highest temperature zone of a candle flame is found in the
   (a) Inner zone ☐ (b) Middle zone ☐
   (c) Outer zone ☐ (d) None of these ☐
6. Due to incomplete combustion, a fuel gives out
   (a) Blue flame ☐ (b) Yellow flame ☐
   (c) Green flame ☐ (d) Black flame ☐
7. The unit for calorific value is
   (a) KJ ☐ (b) KJ/cm ☐
   (c) KJ/mm ☐ (d) KJ/kg ☐

## E. Very short answer questions.

1. Name two combustible substances.

2. Name two noncombustible substances.

3. What is a fuel?

4. What is combustion?

5. Do all combustible substances have the same ignition temperature?

6. Name a common fire extinguishing agent.

7. Is carbon dioxide gas heavier or lighter than oxygen gas?

8. What is 'soot'?

9. Name the harmful gases produced during incomplete combustion of a fuel.

10. Name a substance that gets ignited spontaneously at room temperature during summer.

## F. Short answers questions.

1. What do you understand by the term 'Calorific value'?

2. Differentiate between the following.

(a) Complete combustion and Incomplete combustion

| COMPLETE COMBUSTION | INCOMPLETE COMBUSTION |
|---|---|
| | |

(b) Rapid combustion and Spontaneous combustion

| RAPID COMBUSTION | SPONTANEOUS COMBUSTION |
|---|---|
| | |

3. What do you understand by the term ignition temperature?

4. What are the conditions necessary for combustion to occur?

5. How does water help in extinguishing fire?

6. What is a fire extinguisher?

7. How does the use of a blanket help in extinguishing fire?

8. What do you understand by an 'explosion'?

9. 'The calorific value of hydrogen gas is 14790 KJ/kg.' What do you understand by this statement?

## G. Long answer questions.

1. How does carbon dioxide gas help in extinguishing fire?

2. What are the characteristics of a good fuel?

3. What is acid rain? How is it caused? What are the serious effects of acid rain?

4. What is global warming? How is it caused? What are the effects of global warming?

## HOME ASSIGNMENT

**H. Think and answer.**

1. Kapil burnt a piece of coal and a paper separately. He observed that the paper burnt with a flame while the piece of coal burnt without a flame. He wondered why is it so?

2. Mr. Sharma's electric meter caught fire. He did not use water to extinguish the fire. Why?

3. Carbon dioxide gas is a very good fire extinguisher. Which condition of combustion is not fulfilled if we use carbon dioxide gas as a fire extinguisher?

## WORKSHEET

**I. Give reasons for the following.**

1. A paper cup containing water does not catch fire on heating.

2. Water is not used to control fire caused by electrical equipment.

3. Food is the fuel for our body.

4. White phosphorus is stored under water.

5. A candle burns with a flame.

6. A matchstick does not burn on its own but catches fire on striking it along a rough surface.