

Q1. Mcq**1. Which one of the following gases is used in combustion?**

- (a) Hydrogen
- (b) Oxygen
- (c) Nitrogen
- (d) Carbon dioxide

2. The burning of LPG is an example of

- (a) Rapid combustion
- (b) Spontaneous combustion
- (c) Slow combustion
- (d) Explosion

3. The amount of heat energy produced on complete combustion of 1 kg of a fuel is called

- (a) Calorific value
- (b) Significant value
- (c) Heat value
- (d) Internal energy

4. Which zone represents the partial combustion in candle flame?

- (a) Outer zone
- (b) Middle zone
- (c) Inner zone
- (d) Lower zone

5. Burning coal in a closed room will produce

- (a) nitrogen oxides
- (b) carbon dioxide
- (c) carbon monoxide
- (d) oxygen

6. Substances which catch fire are called

- (a) acids
- (b) bases
- (c) combustible
- (d) burners

7. Out of these, which is able to control fires?

- (a) NH₃

- (b) H₂
- (c) CO₂
- (d) F₂

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

- (a) Outer zone
- (b) Middle zone
- (c) Inner zone
- (d) Lower zone

9. Calorific value of a fuel is expressed in

- (a) kilojoule per kilogram
- (b) kilojoule per gram
- (c) joule per milligram
- (d) kilojoule per milligram

10. Acid rain contains mainly

- (a) oxygen and nitrogen gas
- (b) fluorine and chlorine gas
- (c) magnesium oxide
- (d) nitrogen oxide and sulphur dioxide

Q2. State True or False.

- 1. Burning of charcoal produces flame with four distinct zones.**
- 2. The fuel can be only liquid in nature**
- 3. The inner central dark zone of a candle flame is the hottest region**
- 4. The principle of all fire-extinguisher is to cut off the air supply and to cool the burning substance below its ignition temperature**
- 5. Oil has very high ignition temperature**

Q3. Explain the following.

- 1) What are the properties of an ideal fuel?
- 2) What are the disadvantages of fuels? What measures can be to decrease them.

- List conditions under which combustion can take place.
- Fill in the blanks.
 - Burning of wood and coal causes _____ of air.
 - A liquid fuel, used in homes is _____.
 - Fuel must be heated to its _____ before it starts burning.
 - Fire produced by oil cannot be controlled by _____.
- Explain how the use of CNG in automobiles has reduced pollution in our cities.
- Compare LPG and wood as fuels.
- Give reasons.
 - Water is not used to control fires involving electrical equipment.
 - LPG is a better domestic fuel than wood.
 - Paper by itself catches fire easily whereas a piece of paper wrapped around an aluminium pipe does not.
- Make a labelled diagram of a candle flame.
- Name the unit in which the calorific value of a fuel is expressed.
- Explain how CO_2 is able to control fires.
- It is difficult to burn a heap of green leaves but dry leaves catch fire easily. Explain.
- Which zone of a flame does a goldsmith use for melting gold and silver and why?
- 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.
- Can the process of rusting be called combustion? Discuss.
- 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?

1. Acid rain contains mainly
 - (a) oxygen and nitrogen gas
 - (b) fluorine and chlorine gas
 - (c) magnesium oxide
 - (d) nitrogen oxide and sulphur dioxide
2. Which is a non-combustible substance?
 - (a) Wood
 - (b) Paper
 - (c) Iron nails
 - (d) Straw
3. Out of these, which is able to control fires?
 - (a) NH₃
 - (b) H₂
 - (c) CO₂
 - (d) F₂
4. Burning coal in a closed room will produce
 - (a) nitrogen oxides
 - (b) carbon dioxide
 - (c) carbon monoxide
 - (d) oxygen
5. Which is a non-renewable source of energy?
 - (a) Natural gas
 - (b) Wind energy
 - (c) Tidal energy
 - (d) Mechanical energy
6. Like fuel the sun also provides heat and light. The process taking place in the sun is called
 - a. Combustion
 - b. Nuclear process
 - c. Burning
 - d. All of these
7. Coal burns with _____
 - a. Flame
 - b. Only glow

- c. Both flame and glow
d. None of these
8. Combustion is a
a. Chemical process
b. Physical process
c. Both of these processes
d. None of these processes
9. The products of combustion are
a. Carbon dioxide and water
b. Oxygen and water
c. Only carbon dioxide
d. Only oxygen
10. Ignition temperature is the lowest temperature at which a substance catches fire. Identify the correct option regarding the ignition temperature of a good fuel.
A. Ignition temperature below room
B. Ignition temperature above room temperature
C. Ignition temperature equal to 100°C
D. Ignition temperature equal to room temperature
12. Combustion of a substance releases heat and ____.
A. oxygen
B. wood
C. light
D. water
13. The suspended particles released by combustion of coal in air may lead to a health disease. Select the correct option.
A. Goitre
B. Arthritis
C. Asthma
D. Bone cancer
14. What is the main chemical component present in striking surface of a matchbox?
A. Potassium chlorate
B. Phosphorus
C. Potassium
D. Graphite
15. An ideal fuel is cheap, readily available, easily combustible and easy to transport. It has high calorific value. It does not produce gases or residues that pollute the environment. Based on the above statements which of the following are closest to being an ideal fuel?
A. Compressed Natural Gas (CNG)
B. Kerosene
C. Petrol

D. Coal

16. When sufficient oxygen is not available, combustion of methane produces _____ gas and water.

- A. nitrogen
- B. hydrogen
- C. carbon monoxide
- D. carbon dioxide

17. When a cracker is ignited, a sudden reaction takes place with the evolution of heat, light and sound. Identify the type of combustion?

- A. Random combustion
- B. Rapid combustion
- C. Spontaneous combustion
- D. Explosion

18. The efficiency of a fuel is expressed in terms of its _____.

- A. density
- B. calorific value
- C. volume
- D. purity

19. The SI unit of the calorific value of a fuel is :-

- A. N/kg
- B. KJ/kg
- C. KW/kg
- D. J/kg

20. Arrange the different regions of a flame in increasing order of temperature.

- A. Middle region < inner region < outermost region
- B. Outermost region < inner region < middle region
- C. Inner region < outermost region < middle region
- D. Inner region < middle region < outermost region