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1. Which of these is a combustible substance?
(a) Asbestos
(b) Paper
(c) Stone
(d) Sand
Answer: (b) Paper
2. Which of the following is non-combustible substance?
(a) Alcohol
(b) Coal
(c) Iron
(d) Wood
Answer: (c) Iron
3. Which of the following is an inflammatory substance?
(a) Coal
(b) Alcohol
(c) Wood
(d) Stone
Answer: (b) Alcohol
4. A flame has how many zones?
(a) One
(b) Two
(c) Three
(d) Four
Answer: (c) Three
5. The outermost zone of flame is of which colour?
(a) Blue
(b) Orange
(c) Brown
(d) Dark
Answer: (a) Blue
6. The middle zone of flame is of which colour?
(a) Blue
(b) Orange
(c) Transparent
(d) Black
Answer: (b) Orange
7. Which is the best fuel for kitchen; in present times?
(a) LPG
(b) Coal
(c) Kerosne
(d) Petrol
Answer: (a) LPG
8. Which part of flame is used by goldsmith?

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- (a) Blue
- (b) Orange
- (c) Black
- (d) Green

Answer: (a) Blue

9. Which of the following does not produce flame while burning?

- (a) Wax
- (b) Petrol
- (c) Diesel
- (d) Coal

Answer: (d) Coal

VERY SHORT ANSWER TYPE QUESTIONS

10. Define combustion?

Answer:

Combustion is a chemical process in which a substance reacts with oxygen to give off heat.

11. What is combustible substance?

Answer:

A substance which can undergo combustion is called a combustible substance.

12. What is a non-combustible substance?

Answer:

A substance which cannot undergo combustion is called a non-combustible substance.

13. What is ignition temperature?

Answer:

Ignition temperature is the minimum temperature at which combustion starts in a substance.

14. What is an inflammable substance?

Answer:

A substance which has very low ignition temperature so that it can easily catch fire is called an inflammable substance, e.g. petrol, alcohol, etc.

15. What is a fire extinguisher?

Answer:

The substance which is used for putting off fire is called fire extinguisher.

16. What is rapid combustion?

Answer:

When combustion happens at a faster rate, it is called rapid combustion.

17. Define calorific value of a fuel.

Answer:

The amount of heat energy produced on combustion of 1 kg of a fuel is called calorific value of that fuel. It is expressed as kilo Joule per kg (kJ/kg).

18. What is spontaneous combustion?

Answer:

When combustion starts on its own; without an apparent cause; it is called spontaneous combustion.

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19. Which of the two has a lower ignition temperature: petrol or kerosene?

Answer:

Petrol has a lower ignition temperature. Kerosene molecules are larger than petrol molecules and hence don't mix easily with oxygen present in air. Thus, it has higher ignition temperature than petrol.

20. Name the most common fire extinguisher.

Answer:

There are mainly five types of fire extinguisher – Water, Foam, Dry Powder, CO and Wet Chemical. Water is one of the best, cheapest and most common fire extinguishers.

1. Water fire extinguisher

2. Foam fire extinguisher

3. Dry Powder fire extinguisher

4. CO fire extinguisher and,

5. Wet Chemical fire extinguisher. Water is one of the best, cheapest and most common fire extinguishers. Out of all these, the Water fire extinguisher is one of the best, cheapest and most common fire extinguishers.

21. Which is the best fire extinguisher for fires involving electrical equipment and inflammable materials like petrol?

Answer:

Carbon dioxide does not support combustion and hence is considered as the best fire extinguisher for fires involving electrical equipment and inflammable materials like petrol.

22. Name one substance which undergoes spontaneous combustion (or burns in air at room temperature).

Answer:

When white phosphorus is left out open in the room temperature for sometime, it burns all by itself.

23. Name the unit in which the calorific value is expressed.

Answer:

It is measured in units of energy per unit of the mass of the substance, such as: kJ/kg, J/Kg.

24. Which of the following fuels has the lowest calorific value?

Answer:

Coal has the lowest calorific value. Coal contains moisture. When coal burns the moisture in coal evaporates taking away some heat of combustion which is not available for our use.

25. Which of the following fuels has the highest calorific value?

Diesel, Methane, CNG, Coal, Petrol

Answer:

CNG and methane have the highest calorific value. Both of them have calorific value of 50000 KJ/Kg.

26. Name the term which is used to express the efficiency of a fuel.

Answer:

Calorific Value is the term which is used to express the efficiency of a fuel.

27. Name one solid, one liquid and one gas which burn by producing a flame.

Answer:

Molten wax (Solid), Kerosene oil (Liquid) and LPG (gas) are the substances which burn by producing flames.

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28. Which of the following does not produce a flame on burning?

Answer:

Charcoal does not vaporize and so does not produce a flame.

29. Name one fuel which burns without producing a flame.

Answer:

Charcoal does not vaporize and so does not produce a flame.

30. How many zones are there in a flame?

Answer:

A flame consists of three zones. These are innermost zone, middle zone, outer zone. The three zones of a flame have different colors and different temperatures.

31. Which zone of a candle flame is the hottest?

Answer:

The outermost zone has the highest temperature in the flame. It is the hottest part of the flame. It is quite thin as compared to the middle zone.

32. In a candle flame, what is the colour of: (a) innermost zone (b) middle zone and (c) outer zone?

Answer:

(a) innermost zone- The innermost zone of a flame is dark or black

(b) middle zone- The middle zone of a flame is yellow

(c) outer zone- The outer zone of a flame is blue. It is a non-luminous zone

33. Name any harmful product released by the burning of fuels.

Answer:

Incomplete combustion of fuels produces a very poisonous gas called carbon monoxide.

34. Name the very poisonous gas produced by the incomplete combustion of fuels.

Answer:

Incomplete combustion of fuels produces a very poisonous gas called carbon monoxide.

35. Name the fuel which is gradually replacing petrol and diesel in automobiles.

Answer:

The use of diesel and petrol as fuels in automobiles is being replaced by CNG (Compressed Natural Gas), because CNG produces the harmful products in very small amounts. CNG is a cleaner fuel.

36. Name two substances having low ignition temperature and two having high ignition temperatures.

Answer:

LPG and petrol catch fire at very low temperature and thus have low ignition temperature, while wood and coal have high ignition temperature.

SHORT ANSWER TYPE QUESTIONS

37. What are fuels? Name any two common fuels.

Answer:

A fuel is a very good source of heat. The heat energy produced by burning a fuel can be used directly to cook food, for running motor vehicles and factory machines, can be converted into electrical energy at thermal power stations. Wood and Petrol are examples of two common fuels.

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38. State any four characteristics of an ideal fuel (or good fuel).

Answer:

Characteristics of ideal fuel-

1. It has a high calorific value
2. It burns easily in air at a moderate rate
3. It has proper ignition temperature
4. It does not produce any harmful gases or leaves any residue after burning.

39. Define the calorific value of a fuel.

Answer:

The amount of heat produced by the complete burning or combustion of 1 Kilo gram of a fuel is called its calorific value. The calorific value of a fuel is expressed in the unit of Kilo joules per kilogram.

40. "The calorific value of LPG is 55000 KJ/kg". What does it mean?

Answer:

The calorific value of LPG is 55000 KJ/Kg. It means when 1 Kg of LPG is burned completely, then 55000 KJ of heat energy is produced.

41. Can you burn a piece of wood by bringing a lighted matchstick near it? Explain.

Answer:

A matchstick can light a tiny splinter of wood but not a big log of wood. A splinter of wood has a low ignition temperature. A burning matchstick can produce sufficient heat to reach the ignition temperature of the splinter of wood therefore a matchstick can light a splinter of wood directly.

42. Why do you have to use paper or kerosene oil to start fire in wood or coal?

Answer:

The ignition temperature of wood or coal is very high, as it requires too much of time to get heated before burning. We use paper or kerosene to start fire because they have low ignition temperature which helps to catch fire immediately and helps the wood or the coal to reach its required ignition temperature.

43. What is meant by rapid combustion? Give one example of rapid combustion.

Answer:

Rapid combustion is the combustion in which a substance burns rapidly with the help of an external source and produces heat within a very short time. Eg:- Burning of LPG.

44. What is meant spontaneous combustion? Give one example of spontaneous combustion.

Answer:

Spontaneous combustion is the combustion in which a substance burns spontaneously and produces heat and light without the help of external source of heat. Eg:- phosphorus burns spontaneously at room temperature.

45. What is meant by explosive combustion (or explosion)? Give one example of explosive combustion (or explosion).

Answer:

Explosive combustion is the combustion in which a substance burns suddenly and produces heat, light and sound with the help of external source of heat or pressure. Eg:- explosion of crackers on applying heat or pressure.

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46. How will you show that air is necessary of combustion?

Answer:

Oxygen helps in combustion. Air contains about 29% of oxygen, thus supply of air makes the oxygen available which helps in combustion. Without oxygen, combustion will not take place.

47. Can the process of rusting be called combustion? Give reason for your Answer:.

Answer:

Combustion is a chemical process in which a substance reacts with oxygen and gives out energy during the process in the form of either heat or light or both. Rusting of iron is an exothermic process as heat is released during rusting. Hence, it is a kind of slow combustion.

48. Why are fires produced by burning oil not extinguished by pouring water?

Answer:

As water is heavier than petrol therefore slips down permitting the petrol to rise to the surface and continue to burn. Besides, the existing temperature is so high that the water poured on the fire evaporates even before it can extinguish the fire.

49. Explain why, fire caused by electricity should not be extinguished by pouring water.

Answer:

Water is conductive in nature and hence the electricity in the equipment could reach the extinguisher (the person dousing the fire using water) and can electrocute him/her.

