

SOLVED QUESTIONS

1. What is air pollution?

Ans:- When air contains substances that are harmful to plants and animals, it is said to be polluted.

2. What are the causes of air pollution?

Ans. Volcanic eruption, crop pollination and human activities like burning of coal, wood, diesel oil, petrol, kerosene, etc. are the major causes of air pollution.

3. Suggest five measures to prevent air pollution.

Ans. Air pollution can be prevented as follows:

(i) By using smokeless sources of energy like solar energy and electrical energy.

(ii) By using filters for the smoke coming out of the chimneys of factories and power plants.

(iii) By using internal combustion engines in vehicles for complete and efficient burning of fuel.

(iv) By locating industries away from factories.

(v) By growing more trees

4. What are the ways in which nitrogen fixation occurs.

Ans:- (i) Nitrogen fixation occurs biologically with the help of symbiotic bacteria living in the root nodules of leguminous plants.

(ii) Nitrogen fixation occurs non-biologically during lightning when nitrogen and oxygen present in air combine to form nitric oxide, which further reacts with oxygen to form nitrogen dioxide. Nitrogen dioxide then reacts with water to form nitric acid and nitrous acid. Nitric acid reacts with metals carbonates to form metal nitrates.

5. What are the harmful effects of sulphur dioxide, nitrogen dioxide and hydrogen sulphide present in the air?

Ans:- Sulphur dioxide, nitrogen dioxide and hydrogen sulphide cause many serious respiratory problems. They destroy the ozone layer, which protects us from ultraviolet radiations of the sun. They also cause acid rain.

6. Why is hydrogen peroxide preferred in the preparation of oxygen gas?

Ans:- Hydrogen peroxide is preferred for laboratory preparation of oxygen because:

I. no heating is required

II. the rate of evolution of O_2 is moderate and therefore under control

III. H_2O_2 is a safe chemical.

7. Why is oxygen gas collected by the downward displacement of water?

Ans:- Oxygen gas is collected by the downward displacement of water because:

(i) Oxygen is only slightly soluble in water. So, it can be collected over water without fear of excessive dilution.

(ii) Oxygen is slightly heavier than air, so it cannot be collected over air.

8. What happens when a glowing splinter is introduced in a jar containing oxygen?

Ans:- Oxygen is a supporter of burning. So a glowing splinter rekindles when introduced in a jar containing oxygen.

9. Give four uses of oxygen. What is carbogen?

Ans:- (i) Oxygen is used during respiration.

(ii) Oxygen is used for burning or combustion.

(iii) Liquid oxygen acts as a propellant.

(iv) Oxyhydrogen flame provides a temperature around 2800°C which is used for welding and cutting of metals. Carbogen is a mixture of oxygen (95%) and carbon dioxide (5%) which is given to patients to stimulate breathing.

10. How is oxygen renewed in air?

Ans: Oxygen is renewed in air by the process of photosynthesis.

11. What is green house effect?

Ans:- The trapping of the earth's radiated energy by carbon dioxide present in the air, so as to keep the earth warm, is called green house effect.

12. Why are rare gases inactive compared to other elements?

Ans. Inert gases have eight electrons in their outermost orbit. So, they do not react with any other substances. Hence, the rare gases are inactive compared to other elements.

13. An oxy-hydrogen flame is used for welding and cutting metals.

Ans. Hydrogen is a combustible gas and oxygen is a supporter of combustion. Thus, oxy- hydrogen flame produces a temperature of about 2800°C at which the metal melts, enabling it to be cut and welded.

14. Patients suffering from respiratory problems are kept in an oxygen tent.

Ans. Patients suffering from respiratory problems are kept in an oxygen tent to get more and constant supply of oxygen.

15. A product formed during the burning of a candle turns white anhydrous copper sulphate blue.

Ans. Water vapour is formed as one of the products during the burning of a candle which turns white anhydrous copper sulphate blue.