Class – 7

Sub. – Chemistry

Chapter – 8

Air

Objective Questions:

Choose the correct option.

1.Which of the following components of air helps plants manufacture carbohydrates?

Ans. Oxygen

2. Which of the following gases is essential for respiration?

Ans. Oxygen

3. Which of the following gaseous mixtures is carried by deep-sea divers for respiration?

Ans. Oxygen and helium

4. Which of the following gases is evolved when marbel reacts with an acid?

Ans. Carbon dioxide

Fill in the blanks:

1.Carbon monoxide is formed by the **incomplete** combustion.

2. Combustion is an **oxidation** reaction.

3. A burning splinter is extinguished by **carbon dioxide.**

4. During lightning, nitrogen combines with oxygen to form **nitric oxide**.

5. Urea supplies **nitrogen** to soil or plants.

Write T for true and F for false for the following statements.

1.Sulphur dioxide does not cause acid rain. **F**

2.Acid rain damages sculptures and monuments.**T**

3.Nitrogen is a poisonous gas. **F**

4.Upon dissolving in water, carbon dioxide forms carbonic acid. **T**

Short – Answer Questions:

Q.1 – Arrange oxygen, nitrogen, carbon dioxide and argon in decreasing order of proportion in air.

Ans. – Nitrogen>Oxygen>Argon>Carbon dioxide

Q.2 – Is air a mixture or a compound?

Ans. – Air is a mixture.

Q.3 – Name the method by which the constituents of liquefied air may be separated.

Ans. – Fractional distillation.

Q.4 – Name three gaseous pollutants of air.

Ans. – i. Sulphur dioxide

ii. carbon monoxide

iii. Hydrogen sulphide

Q.5 – What is a catalyst?

Ans. – A catalyst is a substance that is generally used for speeding up a reaction. It does not undergo any change itself.

Q.6 – What are the following called?

a. The phenomenon in which a substance combines with oxygen giving out heat and light.

Ans. – Combustion

b. The reaction in which a substance adds on oxygen.

Ans. Oxidation

Q.7 – If a diver inhales air deep under the sea, a gas dissolves in his blood, and this gas bubbles out when he comes up. Name the gas.

Ans. Nitrogen

Q.8 – What is the common name of solid carbon dioxide and why is it called so?

Ans. The common name of solid carbon dioxide is dry ice. It is called so because it is used to keep things cold without wetting them.

Q.9 – What happens when nitrogen dioxide reacts with water?

Ans. Nitric acid and nitric oxide forms.

Nitrogen dioxide + water ⟶ nitric acid + nitric oxide

Q.10 – Name the gas used for filling food packages.

Ans. Nitrogen

Long – Answer Questions:

Q.1 - Describe a method of preparing oxygen without using a source of heat.

Ans. From hydrogen peroxide oxygen can be prepared without using a source of heat. Hydrogen peroxide decomposes slowly at room temperature to form water and oxygen. Manganese dioxide acts as a catalyst in this reaction.

Hydrogen peroxide ⟶ Water + oxygen

Q.2 – Compare burning with rusting.

Ans.

Burning	Rusting
1.Burning is a fast process.	Rusting is a slow process.
2. It takes place at high temperatures.	It takes place at ordinary temperatures.
3. It does not require anything other than the combustible substance and oxygen.	It requires moisture apart from iron and oxygen.
4. Burning is an oxidation process.	Rusting is also an oxidation process.
5. It is an exothermic process.	It is also an exothermic process.

Q.3 – How are carbon dioxide and nitrogen used for life-processes?

Ans. Carbon dioxide – Carbon dioxide is used in photosynthesis. The food produced in photosynthesis is used by all plants and animals, either directly or indirectly.

Nitrogen – Cells contain proteins what are called nucleic acids. These compounds are rich in nitrogen. Plants manufacture them from the nitrogen of atmosphere.

Q.4 – What is acid rain? Discuss its harmful effects.

Ans. The oxides of sulphur and nitrogen present as pollutants in the air react with the water present in the atmosphere to form acids. These acids come down with rain, making the rain water acidic. Such rain is called acid rain.

Harmful effects of acid rain – 1. The water of lakes and rivers becomes acidic and unsuitable for aquatic plants and animals.
2. The soil becomes acidic and unsuitable for cultivation.
3. Sculptures, monuments and buildings are eroded.