

# AIR AND ATMOSPHERE

Date

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## EXERCISE - 1

1. What is atmosphere?

ans. The Earth is surrounded by a thick layer of air called the atmosphere that extends upto a height of about 320 kms above the surface of the Earth.

2. Why can't we see air?

ans. We can't see air because it is colorless, odorless and transparent gaseous matter.

3. What is wind?

ans. Fast moving air is called wind.

4. What could have happened if there would have been no atmosphere around the Earth?

ans. Without atmosphere life would not be possible as atmosphere protects us from harmful gases. We could not live without air present in atmosphere. In absence of the atmosphere,

the Earth would get so cold at night ~~and~~ that we would not be able to survive. No CO<sub>2</sub> and N<sub>2</sub> for plants without atmosphere.

5 Why is air called a mixture? Give five facts in support of your answer?

ans. Air is a mixture because :-

- i) Air has no ~~formula~~ formula, a mixture has no formula whereas compound has a formula.
- ii) No energy changes are involved to form ~~air~~ air from various gases.
- iii) When air is formed out of its constituents no change in mass and no change in volume takes place.
- iv) Properties of air vary ~~from~~ from place to place and time to time.
- v) Components of air can be separated by simple physical methods.

6. What are the main components of air? Write down the composition of three main gases present in air by volume?

ans) The main components of air are -

- i) Nitrogen
  - ii) Oxygen
  - iii) Carbon dioxide
- The composition of three main gases present in air by volume are:

<u>Gases</u>	<u>Volume</u>
i) Nitrogen	78%
ii) Oxygen	21%
iii) Carbondioxide	0.03 - 0.04%

7. What do you observe when -

a) Ice cold water is filled in a glass tumbler.

ans. We will observe that fine water droplets get deposited on the outer wall of the glass tumbler.

b) A burning candle is covered with an inverted jar.

ans. The candle burns more brightly because candle gets  $O_2$  gas support in burning.

c) Carbon dioxide gas is passed through lime water.

ans. When  $CO_2$  gas is passed through lime water, it forms calcium carbonate which is white precipitate. This gives the milky white appearance to the solution.

d) A beam of light is allowed to enter in a close dark room through a small hole.

ans. We will observe randomly moving dust

particles in the beam of light. This confirms the presence of dust particles in the air.

8. ~~Write~~ Write the chemical name of

(a) Lime Water

(b) The white insoluble solid formed on reaction of carbon dioxide with lime water.

Ans. (a) Lime Water - Calcium Hydroxide -  $\text{Ca(OH)}_2$

(b) Calcium Carbonate -  $\text{CaCO}_3$

### EXERCISE - II

1. Name two important processes supported by oxygen present in air?

ans. The two processes supported by oxygen present in air are -

i) Combustion                      ii) Respiration.

2. Give two uses of the following components present in air -

a) ~~the~~ Oxygen :- For respiration and breathing no life is possible without oxygen.

Oxygen is the most vital component which is responsible for two most important processes - i) Respiration ii) Combustion.

b) Nitrogen - present in air gets fixed up in the soil as nitrates used by plants for their growth and for the formation of protein an important nutrient for animals. It is used to make fertilizers and various ~~nitrogenous~~ nitrogenous products.

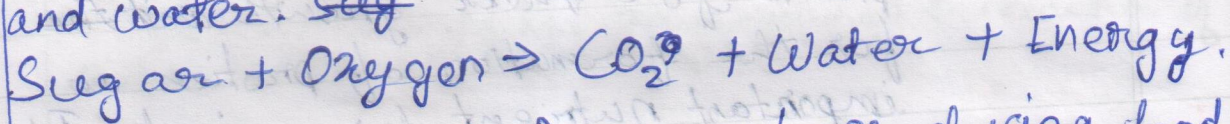
c) Carbon dioxide - Carbon dioxide is used by plants to prepare their food by photosynthesis. Dry ice (Solid carbon dioxide) is used as a refrigerant. Carbon dioxide is used to prepare fizzy drinks like soda water.

d) Water vapour - Water vapour present in air provide moisture for both plants and animals. It also helps in predicting climatic conditions of a particular area as its amount varies from place to place and time to time.

3. Define the following :-

a) Respiration :- Respiration is a chemical

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process that takes place in all living beings (slow in plants). In this process oxygen present in inhaled air reacts with the digested food materials in the body. This results in release of energy, carbon dioxide and water. Eq



b) Photosynthesis - Process of producing food by green plants, <sup>taking</sup>  $\text{CO}_2$  from air, water from soil by roots and in presence of sun light and Chlorophyll  $\rightarrow$  called photosynthesis.

c) Combustion - Combustion also called burning "is burning of substance in oxygen of air completely producing heat and light is called combustion.

4. What are fuels? Give two examples of modern fuels?

ans. The substances which burn in air to produce large amount of energy in the form of heat and light are called 'fuels'.  
Eg - L.P.G. and C.N.G. (Compressed Natural Gas)

5. Give reason

a) Aquatic animals and ~~plants~~ plants are able to survive in water.

ans. Aquatic animals and plants use oxygen dissolved in water and survive.

b) A burning candle stops burning when it is covered with a glass tumbler.

ans. Oxygen is necessary for combustion. When covered with a glass tumbler, the supply of oxygen stops.

c) Mountaineers and divers carry oxygen cylinders with them.

ans. For artificial respiration, mountaineers carry oxygen cylinders as at high altitudes, the air is thin and breathing becomes difficult. Also divers carry oxygen cylinders for artificial respiration as there is less oxygen dissolved in water (less dense) and breathing becomes

d) When water is heated, we see bubbles rising up?

ans. These bubbles come from the air dissolved in water. The marine life uses air dissolved in water.