

Very Short Answer Questions

Q.1. Define atmosphere.

Ans. The blanket of air that surrounds the earth is called atmosphere.

Q.2. What is humidity?

Ans. The amount of water vapour present in the air is called humidity.

Q.3. Which gas is most abundant and is important for growth of plants and animals?

Ans. Nitrogen

Q.4. Name the component of air used by green plants to make their food.

Ans. Carbon dioxide

Q.5. Name any two musical instruments in which air plays an important role.

Ans. Flute and saxophone

Short Answer Questions

Q.1. Garima observed that when she left her tightly capped bottle full of water in the open sunlight, tiny bubbles were formed all around inside the bottle. Help Garima to know why it so happened?
[NCERT Exemplar]

Ans. Air dissolved in water starts escaping in the form of tiny bubbles due to heat from the sun.

Q.2. Why does the transparent glass of windows, if not wiped off regularly, appears hazy?

Ans. Air contains dust and smoke along with the gases. These gets deposited on the glass windows and make them appear hazy.

Q.3. Why during an incident of fire, one is advised to wrap a woollen blanket over a burning object?

Ans. For combustion to take place, oxygen is required. When a woollen blanket is wrapped over a burning object, fire loses contact with oxygen and, therefore, stops burning after sometime.

Q.4. Why do you think, mountaineers carry oxygen cylinders with them, while climbing high mountains?

Ans. As we go higher on the mountains, the air becomes thinner. The amount of oxygen decreases and it becomes hard to breath. Therefore, mountaineers carry oxygen cylinders with them.

Q.5. How do the organisms living in soil get the air they need, for respiration?

Ans. The spaces between the soil particles are filled with air. This air is taken up by plants and animals for respiration.

Q.6. Why all the oxygen of atmosphere does not get used up though a large number of organisms are consuming it?

Ans. A large number of organisms take up oxygen for respiration and release carbon dioxide. Plants take up this carbon dioxide and release oxygen in the atmosphere. Therefore, this balance is maintained.

Q.7. Name the gas required (i) for breathing, (ii) for photosynthesis, (iii) to extinguish a fire, (iv) to make fertilisers, and (v) for burning.

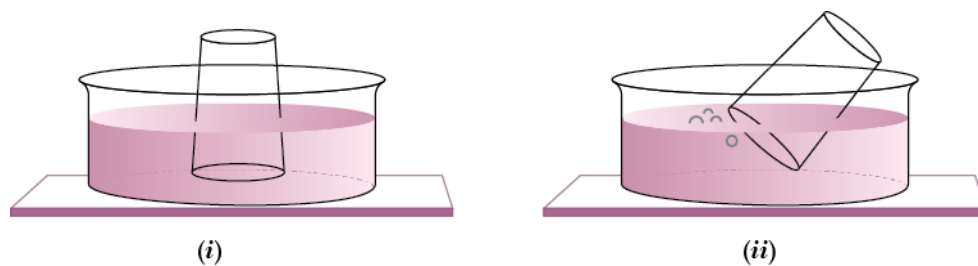
Ans.

- i. Oxygen,
- ii. carbon dioxide,
- iii. carbon dioxide,
- iv. nitrogen, and
- v. oxygen.

Q.8. Two jars A and B are filled with two gases—nitrogen and oxygen. Both are colourless and odourless. How can you identify the jar that contains oxygen gas?

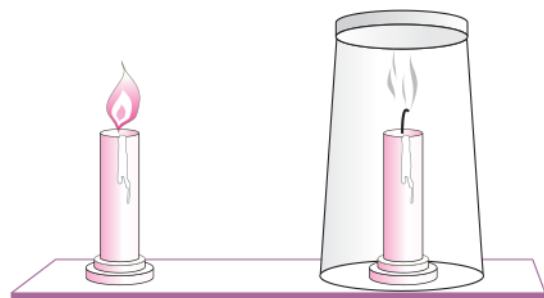
Ans. By bringing a burning matchstick near the mouth of both jars, presence of oxygen can be checked. The matchstick will extinguish near the jar containing nitrogen.

Q.9. Study the figures given below and answer the questions that follow.



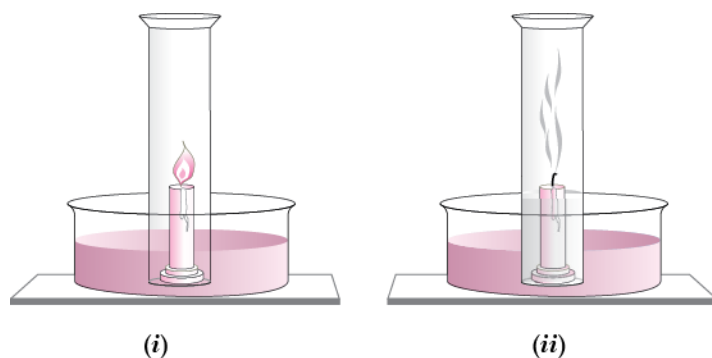
Q. Why does air enter in (ii)?

Ans. When the glass is tilted, the air present in the glass is rapidly replaced with water.



Q. Why does the candle get extinguished when covered with a glass jar?

Ans. For burning, oxygen is required. When covered, the candle does not get access to oxygen, hence it extinguishes.



Q. When the candle gets extinguished, why does the level of water rise in the inverted jar (ii)?

Ans. When the candle extinguishes, the temperature inside the jar decreases and the temperature drops. To equalise the pressure, water enters into the jar.

Q.10. Why are factories fitted with tall chimneys?

Ans. Burning of fuel and materials produce smoke and other harmful gases which are released out of the factories by the chimneys.

Long Answer Questions

Q.1. Explain the following observations very briefly.

[NCERT

Exemplar]

Q. A firki does not rotate in a closed area.

Ans. Lack of air movement hinders the rotation of firki in a closed area.

Q. The arrow of weather cock points towards a particular direction at a particular moment.

Ans. Shows the latest direction of the wind.

Q. An empty glass in fact is not empty.

Ans. Even the so-called empty glass is not in fact empty. It is filled with air.

Q. Breathing through mouth may harm you.

Ans. You may inhale dust if present in air which may prove harmful.

Q.2. Paheli kept some water in a beaker for heating. She observed that tiny bubbles appeared before the water started to boil. She boiled the water for about 5 minutes and filled it in a bottle up to the brim and kept the bottle airtight till it cooled down to room temperature.

- i. Why did the tiny bubbles appear?
- ii. Do you think tiny bubbles will appear on heating the water taken out from the bottle? Justify your answer. [NCERT Exemplar]

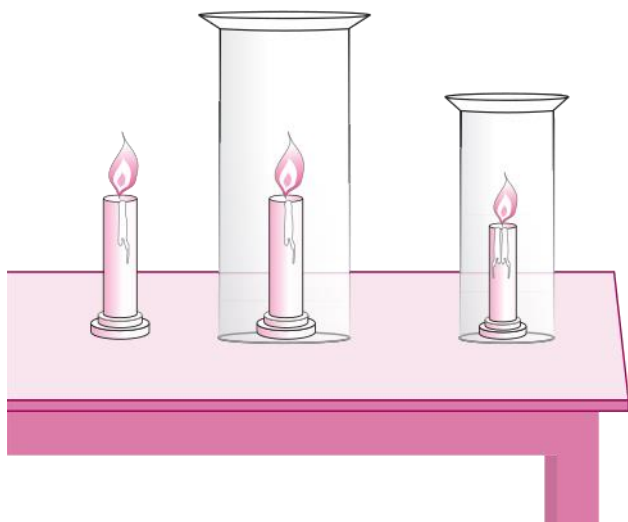
Ans.

- i. Water contains air dissolved in it. On boiling, this air separates out from water and evolve out as air bubbles.
- ii. No, tiny bubbles will not appear as there is no dissolved air in this water.

Q.3. How will you prove that oxygen supports burning?

Ans.

- Take three candles, two glass jars that can cover two candles but of different sizes and a watch.
- Light all the three candles at one time after fixing them on the table. Cover two candles with the jars. Leave one candle uncovered. Switch off the fan and close doors and windows. This will stop wind from blowing off the candles.
- After some time the candle covered with the small jar goes off first. Then the one with a bigger jar goes off. The candle in the open continues to burn. Thus, air supports burning.



Q.4. How will you show that air is dissolved in water?

Ans.

- Take some water in a glass vessel. Look carefully at the inner surface of the vessel.
- There are tiny bubbles on the inside of the vessel. These bubbles come from the air dissolved in water.
- Heat the water slowly on a tripod stand.
- We see the air dissolved in it escapes. On further heating, the water itself turns into vapour and finally begins to boil.

Thus, the animals living in water use the dissolved oxygen in water.

Q.5. How is the level of oxygen maintained in the atmosphere?

Ans. The level of oxygen is maintained in the atmosphere by planting more and more trees and by avoiding excessive burning of fuels. The plants will take up the carbon dioxide in the atmosphere to make their food and in turn will release oxygen. This oxygen is taken up by animals, including humans, for respiration and in turn release carbon dioxide.

HOTS (Higher Order Thinking Skills)

Q.1. Will the tiny air bubbles seen before the water actually boils, also appear if we do this activity by reheating boiled water kept in an airtight bottle?"

Ans. No. The bubbles are because of the air present in water. In an airtight bottle, no air is present.

Q.2. Why do you think, the policeman in the figure below is wearing a mask?



Ans. The exhaust of automobiles releases harmful gases which can affect the respiratory system drastically. Therefore, the policeman is wearing a mask to reduce the amount of pollutant intake.

Q.3. Why should you not sleep under the trees during the night?

Ans. During night, trees release carbon dioxide and excess of carbon dioxide can cause suffocation.

Q.4. On a Sunday morning Paheli's friend visited her home. She wanted to see some flowering plants in the nearby garden. Both of them went to the garden. While returning from the garden they also observed some flowering plants on the roadside. But to their surprise they found that the leaves and flowers of these roadside plants were comparatively very dull. Can you help them to know why?

[NCERT Exemplar]

Ans. The roadside plants probably had some dust and soot deposited on them and thus appeared dull.