

Chapter 15: Air Around Us

NCERT Exemplar · Class 6 · Science

Multiple Choice Questions

Question 1

Which of the following statements is incorrect?

A.

All living things require air to breathe.

B.

We can feel air but we cannot see it.

C.

Moving air makes it possible to fly a kite.

D.

Air is present everywhere but not in soil.

Answer

Correct option: D

Solution

Ans: d) Air is present everywhere but not in soil.

Air is omnipresent and is present in soil too. This can be inferred by adding water to a pot filled with a lump of soil. After adding water it can be observed that the soil absorbs all the water and air bubbles are formed. These air bubbles show the escaping air.

Question 2

Wind does not help in the movement of which of the following?

A.

Firki

B.

Weather cock

C.

Ceiling fan

D.

Sailing yacht

Answer

Correct option: C

Solution

Ans: c) Ceiling fan

Wind does not help in the movement of ceiling fan because it moves by electricity.

Question 3

What is not true about air?

A.

It makes the windmill rotate.

B.

It helps in the movements of aeroplanes.

C.

Birds can fly due to presence of air.

D.

It has no role in water cycle.

Answer

Correct option: D

Solution

Ans: d) it has no role in water cycle.

During the process of evaporation, the vapours of water are risen up by air to form clouds.

Question 4

Mountaineers carry oxygen cylinders with them because

A.

There is no oxygen on high mountains

B.

There is deficiency of oxygen on mountains at high altitude

C.

Oxygen is used for cooking

D.

Oxygen keeps them warm at low temperature.

Answer

Correct option: B

Solution

Ans: b) there is deficiency of oxygen on mountains at high altitude.

With increase in altitude, the atmosphere gets thinner and levels of oxygen decreases. This makes it difficult to breathe in higher altitudes as oxygen supply is reduced.

Question 5

Boojho took an empty plastic bottle turned it upside down and dipped its open mouth into a bucket filled with water. He then tilted the bottle slightly and made the following observations.

- i. Bubbles of air came out from the bottle.
- ii. Some water entered the bottle.
- iii. Nitrogen gas came out in the form of bubbles and oxygen got dissolved in water.
- iv. No bubbles formed, only water entered the bottle.

Which observations is/are correct?

A.

(i) and (ii)

B.

(iv) only

C.

(iii) and (iv)

D.

(i) only

Answer

Correct option: A

Solution

Ans: a) (i) and (ii)

When we dip an empty bottle in a bucket filled with water, the air trapped in the bottle starts escaping and tiny air bubbles are formed. Also, when he tilted the bottle, some water entered it because when the air escaped there was empty space left.

Question 6

Which of the following components of air is present in the largest amount in the atmosphere?

A.

Nitrogen

B.

Oxygen

C.

Water vapour

D.

Carbon dioxide

Answer

Correct option: A

Solution

Ans: a) Nitrogen

Atmospheric air contains all the four mentioned components but the component with the largest amount present in the air is nitrogen, which constitutes 78% of the atmospheric air whereas oxygen constitutes

21% and remaining 1% is formed by water vapour, carbon dioxide, few other gases and dust particles.

Question 7

The components of air which are harmful to living beings are

A.

Nitrogen and carbon dioxide.

B.

Dust and water vapour.

C.

Dust and smoke.

D.

Smoke and water vapour.

Answer

Correct option: C

Solution

Ans: c) Dust and smoke

Dust and smoke are harmful to living beings because if they enter our body, they can cause respiratory problems.

Question 8

Usha took a lump of dry soil in a glass and added water to it till it was completely immersed. She observed bubbles coming out. The bubbles contain

A.

water vapour

B.

only oxygen gas

C.

air

D.

none of these

Answer

Correct option: C

Solution

Ans: c) Air

When Usha poured water on the lump of soil, the air trapped in it got displaced and air bubbles were formed.

Very Short Answer Questions

Question 9

State whether the following statements are true or false. If false, correct them.

(a) Plants consume oxygen for respiration.

(b) Plants produce oxygen during the process of making their own food.

(c) Air helps in the movements of sailing yachts and glider but plays no role in the flight of birds and aeroplanes.

(d) Air does not occupy any space.

Solution

Ans: True

Ans: True

Ans: False because air helps in the flight of birds and aeroplanes.

Ans: False because air occupies space.

Question 10

In a number of musical instruments, air plays an important role. Can you name some such instruments?

Solution

Ans: Such instruments are flute, mouth organ, trumpet, shehnai and harmonium.

Question 11

In the boxes of Column I the letters of some words got jumbled. Arrange them in proper form in the boxes given in Column II.

COLUMN I	COLUMN II
a) D I L L M W I N	a)
b) Y N O G X E	b)
c) M E S K O	c)

d) T U D S	d)
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Solution

Answer:

COLUMN I	COLUMN II
a) D I L L M W I N	a) W I N D M I L L
b) Y N O G X E	b) O X Y G E N
c) M E S K O	c) S M O K E
d) T U D S	d) D U S T

Question 12

Make sentences using the given set of words.

- (a) 99%, oxygen, nitrogen, air, together
- (b) Respiration, dissolved, animals, air, aquatic
- (c) Air, wind, motion, called

Solution

Ans: Nitrogen and oxygen together make up 99% of the air.

Ans: Aquatic animals use dissolved air for respiration.

Ans: Air in motion is called wind.

Short Answer Questions

Question 13

A list of words is given in a box. Use appropriate words to fill up the blanks in the following statements.

Air, oxygen, wind, water vapour, mixture, combination, direction, road, bottles, cylinders.

- (a) The _____ makes the windmill rotate.
- (b) Air is a _____ of some gases.
- (c) A weather cock shows the _____ in which the air is moving at that place.

Solution

Ans: Wind

Ans: Mixture

Ans: Direction

- (d) Mountaineers carry oxygen _____ with them, while climbing high mountains.

Ans: Cylinders

Question 14

Observe the picture given in Fig. 15.1 carefully and answer the following questions.

- (a) What is covering the nose and mouth of the police man?
- (b) Why is he putting a cover on his nose?
- (c) Can you comment on air quality of the place shown in the Fig. 15.1 ?

Solution

Ans: A mask is covering his nose and mouth.

Ans: The mask is protecting him from dirt, pollution and exhaust of vehicles which are harmful elements. If these enter his body, he can suffer from respiratory disorders.

Ans: The exhaust from vehicles is polluting the environment and deteriorating the air quality making it difficult to breathe clean air.

Question 15

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?

Solution

Ans: We know that air is present in water in the form of oxygen. Due to heating from the sunlight, the air that was dissolved in water started escaping. This escape of air resulted in tiny bubbles formed all around inside the water filled bottle.

Question 16

Match the items of Column I with the items of Column II.

COLUMN I	COLUMN II
1. Weather cock	1. gases are fine dust particles
1. Mountaineers	1. sailing yacht

1. Fine hair inside the nose	1. oxygen cylinders
1. Smoke	1. direction of air flow
1. wind	1. prevent dust particles

Solution

Ans: The correct match is given below.

COLUMN I	COLUMN II
1. Weather cock	iv. direction of air flow
1. Mountaineers	iii. oxygen cylinders
1. Fine hair inside the nose	v. prevent dust particles
1. Smoke	i. gases are fine dust particles
1. wind	ii. sailing yacht

Long Answer Questions

Question 17

Explain the following observations very briefly

- (a) A firki does not rotate in a closed area.
- (b) The arrow of weather cock points towards a particular direction at a particular moment.
- (c) An empty glass in fact is not empty.
- (d) Breathing through mouth may harm you.

Solution

Ans: A firki rotates due to the air movement present in the surrounding and a closed area doesn't support air movement. Hence, a firki will rotate only when placed in an open area due to the presence of moving air all around.

Ans: A weather cock is an instrument which is used to indicate the direction in which air is moving. It consists of an arrow, mounted at its centre of gravity so it can move freely about a vertical axis.

Ans: In an empty glass there is always air present which covers up the space therefore, it cannot be said empty. Air is transparent, weightless and doesn't have a definite shape or volume, thus, we cannot see it.

Ans: There are many dust particles, gases and water vapours present in the air that we breathe. When we inhale through nostrils, the entry of these harmful particles is prevented by the fine hair and mucus present in the nose as they filter the air but when we breathe through the mouth there's no such filtering of particles. Thus, they enter our body, reach the respiratory tract and make us ill.

Question 18

Write just a few sentences for an imaginary situation if any of the following gases disappear from the atmosphere

- (a) Oxygen
- (b) Nitrogen
- (c) Carbon dioxide

Solution

Ans: Almost all the living organisms present on earth inhale oxygen or use oxygen in the food making processes (plants use oxygen for photosynthesis). Hence, it is obvious that oxygen is an essential element for survival and there will be no life in the absence of oxygen.

Ans: Nitrogen constitutes major part i.e. 78% of the atmosphere. Nitrogen is a gas that hinders burning. So, if nitrogen disappeared completely from earth, things will burn at a faster rate. Also, in the lack of nitrogen there are increased chances of dehydration. Nitrogen is a necessity for growth of plants. Although plants does not absorb nitrogen directly through air but they consume it in soluble forms. So, no nitrogen will disturb the plant cycle.

Ans: The ecosystem in which we live, all organisms are interdependent on each other. In this cycle of interdependence, carbon dioxide is produced by animals. During photosynthesis plants intake carbon dioxide and give us oxygen (which many other organisms require for respiration). In the absence of carbon dioxide plants will not be able to perform photosynthesis and will die eventually, also organisms which depend on plants for food will be left with no food at all and it will disturb the carbon dioxide – oxygen ratio. If there is no carbon dioxide, oxygen level will decrease simultaneously and we know there is no life without oxygen on earth.

Question 19

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 air tight till it cooled down to room temperature.

(a) Why did the tiny bubbles appeared?

(b) Do you think tiny bubbles will appear on heating the water taken out from the bottle? Justify your answer.

Solution

Ans: The tiny bubbles appeared when the water started boiling because of the air dissolved in water. When she started boiling the water, the air that was dissolved in the water escaped in the form of bubbles.

Ans: No, tiny bubbles will not appear because when Paheli boiled the water, the air from the water escaped out so there is no dissolved air in this water. Hence, the cooled boiled water will not make any tiny bubbles.

Question 20

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 road side. 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?

Solution

Ans: The air quality present in the atmosphere which includes dust and soot particles released from vehicles, factories and chimneys makes the appearance of leaves and flowers dull which are planted on the roadside areas. The dust particles present in the air get deposited on the leaves and flowers and make them look dull.

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