15. Air

Exercises

1 A. Question

Answer the following questions.

Name the constituents of air and give their proportion in

Answer

The constituents of air are:

i. Oxygen

ii. Nitrogen

iii. Water vapour

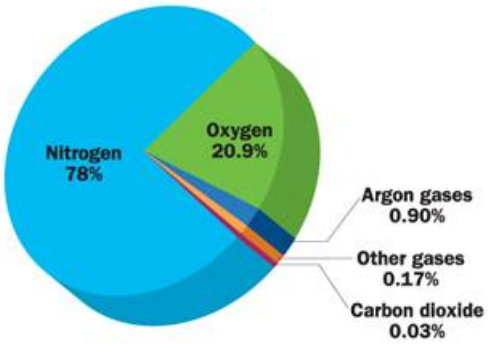
iv. Some inert gases

The proportion of each constituent:

i. Nitrogen contains 78% of air

ii. Oxygen contains 21% of air

iii. Other gases (Carbon dioxide, water vapour, inert gases) contain 1% of air.



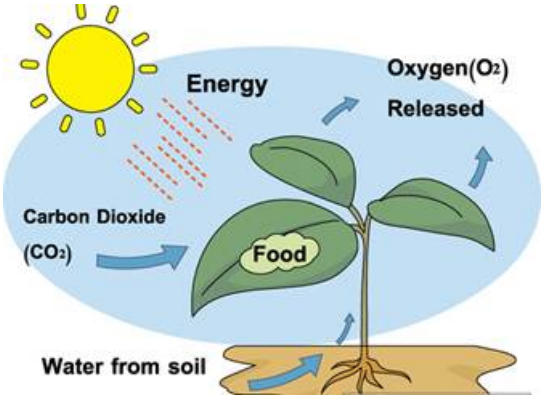
1 B. Question

Answer the following questions.

Of what use is carbon dioxide to plants?

Answer

Plants use carbon dioxide from the air during photosynthesis and release oxygen into air. This whole process takes place in the presence of sunlight.



Note: Photosynthesis is a process used by the plants to change light energy into chemical energy.

1 C. Question

Answer the following questions.

What is meant by nitrogen fixation? How does it happen?

Answer

Nitrogen fixation: The conversion of atmospheric nitrogen into compounds and like ammonia and nitrates which can be used by living things.

This is brought about by both biological and atmospheric factors.

1 D. Question

Answer the following questions.

Which measures are necessary for arresting pollution?

Answer

The measures which are necessary for arresting pollution are:

i. More and more forests and plants should be grown to reduce pollution.

ii. It should be made compulsory for every industry to use the waste before letting it out of industries.

iii. There must be some changes in the chemical processes so that they can produce less harmful chemical substances.

iv. To reduce the harm caused by air pollution, industries should be established away from main cities.

v. The height of the chimneys should be increased.

1 E. Question

Answer the following questions.

What ill-effects of pollution are being seen?

Answer

The ill-effects of pollution are the following:

i. Air pollution leads to higher incidences of respiratory disorders, high blood pressure, eyes disorder.

ii. It also causes psychological disorders.

iii. It also effects plants and animals too.

iv. The capacity of animals to produce milk has also been reduced.

v. There is a fall in process of photosynthesis by plants.

vi. Absence of fruiting, ultimately falling of leaves have also been seen on plants.

1 F. Question

Answer the following questions.

What function does an observatory perform?

Answer

The functions of the observatory system:

i. An observatory records observation of atmospheric factors.

ii. The factors include temperature, pressure, velocity of winds and humidity.

iii. It keeps a record of the changes in weather.

iv. It also forecasts the weather according to the changes observed.

v. Changes are recorded every hour.

vi. With the help of machines, it records the changes.

2 A. Question

Give scientific reasons.

The danger from the greenhouse effect is rising.

Answer

The danger from the greenhouse effect is rising because of the following reasons:

i. The increase in the concentration of gases causing global warming.

ii. The most important cause of threat from the greenhouse effect is carbon dioxide (CO_2)

iii. It is increasing day by day in the atmosphere.

iv. The main cause of increasing carbon dioxide is burning fossil fuels and pollution on the earth.

v. There is a danger of it rising even higher in future.

2 B. Question

Give scientific reasons.

The proportion of nitrogen in air remains constant.

Answer

The proportion of nitrogen in air remains constant due to the following reasons:

i. Through excretion and decay of living things as well as through burning, nitrogen compounds get decomposed.

ii. As the nitrogen is decomposed, it means the nitrogen is back into the air.

iii. That’s how the proportion of nitrogen in air remains constant.

2 C. Question

Give scientific reasons.

When a bottle of an aerated drink is opened. the drink inside gushes out in a stream of bubbles.

Answer

When a bottle of an aerated drink is opened. the drink inside gushes out in a stream of bubbles because:

i. Carbon dioxide dissolves sparingly in water.

ii. It has to be dissolved in water under pressure.

iii. Thus, when the cap is opened, the pressure is released and the carbon dioxide gas gushes out.

3 A. Question

Fill in the blanks

Oxygen ……burn, but ……. burning.

Answer

Oxygen does not itself burn but supports burning.

Explanation:

i. When the wood in a fire is burning low, we blow it with a blower.

ii. It has been observed that the fire flares up and begins to burn vigorously.

iii. After sometime the burning slows down again.

iv. This means that oxygen does not itself burn, but supports burning.

3 B. Question

Fill in the blanks

Some..... substances absorb ..... from the air.

Answer

Some deliquescent substances absorb water vapour from the air.

Explanation:

i. A deliquescent substance is a substance that quickly absorbs water from the air.

ii. This property of deliquescent substances tells that the water vapour is present in the air.

3 C. Question

Fill in the blanks

It is mandatory to treat ..... before letting them out.

Answer

It is mandatory to treat the waste before letting them out.

Explanation:

i. A law has been enacted by the government for the remedy of pollution.

ii. The law includes that it is compulsory for all the industries to treat the waste before letting it go.

3 D. Question

Fill in the blanks

Solid carbon dioxide is also called .....

Answer

Solid carbon dioxide is also called dry ice.

Explanation:

i. If a carbon is cooled at -57°C, it freezes.

ii. The carbon freezes at this temperature is called dry ice.

iii. Dry ice is used to decrease the temperature.

4. Question

Match the following.

`A'	`B'
(a) Potassium chlorate	1. Catalyst
(b) Micro-organisms	2. Nitrogen
(c) Greenhouse effect	3. Carbon dioxide
(d) Fertilizers	4. Oxygen
(e) Manganese dioxide	5. Nitrogen fixation

Answer

(a) Potassium chlorate – oxygen

Explanation:

Potassium chlorate is used in the preparation of oxygen.

It is heated at 300°C in the presence of a catalyst to give oxygen and potassium chloride.

$KClO_3 \rightarrow 2KCl + O_2$

Potassium Potassium Oxygen

Chlorate Chloride

(b) Micro-organisms – nitrogen fixation

Explanation:

Micro-organisms bring the nitrogen fixation.

Two types of micro-organisms are present which bring nitrogen fixation.

(c) Greenhouse effect – Carbon dioxide

Explanation:

The carbon dioxide is increasing day by day in the atmosphere. This increases the threat from the greenhouse effect.

(d) fertilizers – nitrogen

Explanation:

Plants get nitrogen in the form of fertilizers.

Nitrogen is the only constituent which helps in producing the fertilizers.

This helps them to grow faster.

(e) Manganese dioxide – Catalyst

Explanation: Manganese dioxide is used as a catalyst in the preparation of oxygen.

5. Question

Who am I?

(a) I am found in clouds and mist.

(b) I am used in aerated drinks.

(c) I am used in an electric bulb.

(d) I form 78% of air.

(e) I am used in the production of nitric acid.

Answer

(a) Water vapour

Explanation:

Clouds and fogs are formed by the condensation of water vapour.

(b) Carbon dioxide

Explanation:

Carbon dioxide is used in aerated drinks. When you open the cap of a drink, you can see the pressure gushes out of the bottle. That pressure is only due to the carbon dioxide present in it.

(c) Inert gas (Argon)

Explanation:Inert gas like argon gas is used in electric bulbs. As soon as the electricity flows into the bulb, it heats the tungsten wire filament.Note: Inert gas is gas which does not react and burn in any way.

(d) Nitrogen

Explanation:Nitrogen is constitutes 78% of air. It is one of the important constituent of air.

(e) Nitrogen

Explanation:Nitrogen is used in industry for the large-scale production of nitric acid (HNO_3)

Activities

1. Question

Find out which ingredients used in baked products make them light and porous.

Answer

To make the baked products light and porous, some leavening agents are used.

Leavening agents include:

i. Baking soda

ii. Baking powder

iii. Egg whites

iv. Yeast

2. Question

Now-a-days, every motor vehicle is subjected to a `pollution under control' (PUC) test. Find out why this test is done.

Answer

Pollution under control test is done to:

i. Monitor the harmful pollutant emit by the vehicles.

ii. The harmful pollutants may include Sulphur dioxide, carbon dioxide etc.

iii. This test helps in maintaining such pollutants.