



CHEMISTRY

BOOKS - ICSE

AIR

Check Your Progress Answer These Questions

1. Name the main components of air.



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2. Which is the most abundant gas in air?



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3. What per cent of air is oxygen?



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4. Is air a mixture or a compound?



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5. What happens when carbon dioxide is passed through lime water?



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Exercises Tick The Most Appropriate Answer

1. Which of the following is the major constituent of air?

A. oxygen

B. nitrogen

C. carbon dioxide

D. none of these

Answer:



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2. What per cent of air is oxygen?

A. 21

B. 38

C. 78

D. variable

Answer:



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3. Which of the following supports combustion?

A. carbon dioxide

B. nitrogen

C. argon

D. oxygen

Answer:



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4. Which of the following is necessary for photosynthesis?

A. carbon dioxide

B. methane

C. nitrogen

D. oxygen

Answer:



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5. Which of the following determines climatic conditions?

A. oxygen

B. nitrogen

C. carbon dioxide

D. water vapour

Answer:



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6. Which of the following is an inert gas?

A. argon

B. oxygen

C. hydrogen

D. none of these

Answer:



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7. Which metal rusts?

A. gold

B. silver

C. iron

D. aluminium

Answer:



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Exercises Fill In The Blanks

1. ___ controls the rate of burning.



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2. _____ gas is necessary for respiration.





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3. _____ gas is used to make carbonated drinks and soda water.



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4. _____ is used in weather balloons.



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5. Water vapour condenses on _____ particles and causes rain.



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6. ____ are burned to cook food, generate heat and run vehicles.



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7. The blanket of air that surrounds the earth is called the ____



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8. ____ acts as the medium through which sound travels.



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Exercises Write True Or False Correct The False Statements

1. Atmospheric nitrogen gets converted to nitrates in the soil.



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2. The percentage by volume of oxygen in air is variable from place to place.



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3. Burning and respiration require oxygen.



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4. Plants use nitrogen to manufacture food.



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5. Nitrogen is used in fire-extinguishers.



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6. Excess water vapour increases the rate of evaporation.



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7. Argon is used in advertisement signs and brake lights.



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8. Photosynthesis is the only natural process that releases oxygen into the air.



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Exercises Matching

1. Match the columns

Match the columns.

- | | |
|-------------------|-----------------------------------|
| 1. Oxygen | a. needed for photosynthesis |
| 2. Nitrogen | b. supports combustion |
| 3. Carbon dioxide | c. hydrated iron oxide |
| 4. Water vapour | d. helps in protein synthesis |
| 5. Rust | e. determines climatic conditions |
| | f. burns to produce energy |



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Exercises Answer The Following In Short

1. Write down the composition of air in per cent by volume.



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2. Why is nitrogen essential for plants?



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3. In the manufacture of ammonia, i] Name the process ii] State the ratio of the reactants



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4. What is respiration?



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5. What are the uses of krypton and xenon?



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6. What is the importance of dust particles in air?



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7. Name the processes that consume oxygen from the air.



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8. What is rusting ? State the conditions required for rusting.



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Exercises Answer The Following In Detail

1. Describe an experiment to show that air is necessary for burning.



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2. How will you show by an experiment that air contains carbon dioxide?



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3. State the importance of nitrogen.



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4. State the importance of oxygen and carbon dioxide.





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5. Describe the importance of water vapour in air.



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6. List any five points to describe the importance of the atmosphere.



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7. State the causes of increase of carbon dioxide in air.



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**Exercises Complete These Chemical Processes
Also Name These Processes**

1. food + ____ \rightarrow ____ + water vapour + energy



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2. _____ + water → food + _____



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3. _____ + oxygen (air) + _____ → hydrated iron
oxide (rust)



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Think And Answer

1. Things will burn more readily in pure oxygen than in air. Do you agree? Explain.



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2. Animals depend on plants for respiration. How?



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3. Drops of water are seen on the outer surface of a vessel containing chilled water.

Give reason.



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4. Planting more trees can reduce carbon dioxide in air. Do you agree? Explain.



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1. What is atmosphere ?



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2. Why can't we see air ?



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3. What is wind ?



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



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5. What is air called a mixture ? Give five facts in supports of your answer.



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6. What are the main components of air ?

Write down the composition of three main gases present in air by volume.



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7. What do you observe when

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

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

(c) Carbon dioxide gas is passed through lime

water.

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



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8. Write the chemical name of

Lime water



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9. Write the chemical name of

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



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Exercise li

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



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

(a) oxygen (b) nitrogen

(c) carbon dioxide (d) water vapour



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3. Define the following :

(a) Respiration, (b) Photosynthesis,

(c) Combustion.



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



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5. Give reasons :

Aquatic animals and plants are able to survive in water.



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6. Give reasons :

A burning candle stops burning if covered with a glass tumbler.



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7. Give reasons :Mountaineers carry oxygen cylinders with them.



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8. Give reasons :

When water is heated, we see bubbles rising up.



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9. Name the processes which maintain the balance between oxygen and carbon dioxide in the air How is it done ?



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10. State two similarities and two differences between respiration and burning.



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11. Define rusting. What are the two necessary conditions for rusting of iron ? Give the chemical name of rust.



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12. How is air useful to :

(a) water boats (b) agriculture

(c) windmills (d) scooters and cars.



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13. State the full form of LPG and CNG ? How are the two different in their composition ?



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14. Why is nitrogen important to all living beings ?



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15. Nitrogen fixation is



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Exercise Iii

1. What is air pollution ? What are the harmful effects of sulphur dioxide , nitrogen dioxide and hydrogen sulphide present in the air ?



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2. Mention five causes of air pollution.



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3. Name two air pollutants which

(a) affect our health, (b) cause acid rain,

(c) cause global warming



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4. What is meant by ozone depletion ?



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5. State four steps to be taken to control air pollution.



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6. Name three green house gases.



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Objective Type Questions Fill In The Blanks

1. The blanket of air that surrounds the earth is called the ____



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2. Although we cannot see air, we can
..... It.



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3. Air is a Of gases.





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4. Plants and animals maintain the balance of .
..... andin air.



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5. Polluted air is For health.



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6. The supporter of combustion in air is

.....



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7. Green plants need to prepare food.



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8. Oxygen is used in of the food to get.....



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9. Aquatic plants and animals use
. in water.



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10. The reddish brown powder on the surface of iron nails exposed to air and moisture is called



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Objective Type Questions Write True Or False For The Following

1. Air is a compound.



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2. Carbon dioxide is given out during photosynthesis.



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3. Respiration needs nitrogen.

.....



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4. The composition of air was discovered by Lavoisier.



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5. The major component of air is oxygen.

.....



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Objective Type Questions Multiple Choice Questions

1. Air consists of

A. only oxygen

B. only nitrogen

C. only carbon dioxide

D. all of these

Answer:



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2. Air pollution is due to the

A. cutting of green plants

B. gases like carbon monoxide, sulphur dioxide etc.

C. smoke given out by factories

D. all of the above.

Answer:



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3. The gases which cause acid rain are

A. sulphur dioxide and oxygen

B. nitrogen and oxygen

C. carbon dioxide and water vapour

D. nitrogen dioxide and sulphur dioxide.

Answer:



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4. Rust is

- A. hydrated iron oxide
- B. hydrated copper sulphate
- C. anhydrous iron oxide
- D. none of the above

Answer:



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5. Photosynthese is process in which plants

A. take in oxygen and give out carbon dioxide

B. take in carbon dioxide and give out oxygen

C. take in nitrogen and give out oxygen.

D. none of the above

Answer:



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6. Fuels which do not leave any residue on burning are

A. coal and wood

B. coal and LPG

C. wood and CNG

D. LPG and CNG.

Answer:



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7. Respiration is

- A. is a slow process
- B. is a natural and continuous process
- C. takes place at body temperature
- D. all of the above.

Answer:



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8. Which of the following is common in combustion and respiration

A. oxygen

B. release of heat and light

C. natural process

D. nitrogen.

Answer:



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9. Which of the following is not a green house gas ?

- A. carbon dioxide
- B. sulphur dioxide
- C. methane
- D. nitrous oxide

Answer:



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Exercise Short Answer Questions

1. Why do air bubbles come out when soil is added to water ?



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2. Why is the presence of air in the soil essential for plants ?



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3. Name two elements and two compounds present in air .



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4. Name two major components of air and their approximate proportions .



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5. Is the composition of air strictly fixed ?



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6. Where would you expect a higher proportion of carbon dioxide in air ?



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7. In which season would you expect a higher proportion of water vapour in air ?



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8. Which gas is formed when carbon is burnt in air ?



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9. How would you prove that a so-called empty glass is not empty ? What does it contain ?



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10. Describe an activity to show that natural water contains air .



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11. How would you show that a candle needs air to burn ?



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12. Mention five important uses of air .



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Exercise Objective Questions Choose The Correct Options

1. Fish derive oxygen from .

- A. water because it is compound of hydrogen and oxygen
- B. the soil below water
- C. the dissolved air

D. the atmospheric air

Answer:



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2. Air occupies space and has .

A. colour

B. smell

C. mass

D. none of these

Answer:



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3. Which of the following components of air is used in photosynthesisi ?

- A. Nitrogen
- B. Oxygen
- C. Carbon dioxide
- D. Dust

Answer:



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4. Which gas is released in photosynthesis ?

- A. Nitrogen
- B. Oxygen
- C. Carbon dioxide
- D. Water vapour

Answer:



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5. Which of the following components of air is used in respiration ?

- A. Nitrogen
- B. Oxygen
- C. Carbon dioxide
- D. Water vapour

Answer:



6. Which gas is released in respiration ?

- A. Nitric oxide
- B. Carbon monoxide
- C. Carbon dioxide
- D. Sulphur dioxide

Answer:



Exercise Objective Questions

1. Match columns A and B

A

- (i) Air
- (ii) Water
- (iii) Oxygen
- (iv) Nitrogen

B

- (a) a compound
- (b) an inactive gas
- (c) a mixture
- (d) an active element



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Exercise Objective Questions Fill In The Blanks

1. The earth is surrounded by a thick blanket of (air / water)



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2. Water , when poured into a glass , displace..... form the latter . (air / nothing).



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3. Air is a gaseous..... . (compound/ mixture).



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4. A diver carries for respiration .
(nitrogen/dust).



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5. The.....present in air helps in the formation
of clouds. (nitrogen/dust)



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Exercise Objective Questions Write T For True And F For False For The Following Statements

1. The oxygen -to- nitrogen proportion in air is 1:5.



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2. There is a vacuum in an empty glass .



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3. Explain, why carbon dioxide turns lime water milky .



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4. Anhydrous copper sulphate (white) turns blue with water .



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5. Nitrogen is combustile but not a supporter of combustion .



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6. The dust present in air helps the formation of clouds .



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