PHYSICS

BOOKS - PEARSON IIT JEE FOUNDATION

AMAZING AIR

Example

1. Mention the similarity and difference between rusting and burning .

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2. When an empty spray pump is taken and air is blown on a clean mirror , the mirror remains clean. If we gently blow out air form lungus on the same mirror , the mirror misty . Give reason.

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3. The percentage of water vapour in air depends on place and season ' , Comment on the statement.

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4. The characteristics of some gases are given . Explain how they cause pollution.

(a) A colourless , odourless gas which turns lime water milky.

(b) A colourless , pungent gas which turns lime water milky.

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Very Short Answer Type Questions

1. The ratio of oxygen and nitrogen in air is about _____ by volume.

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2. The active component of air is _____.

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3. The oxide of carbon that turns lime water milky is_____.

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4. Fuels react with oxygen to form _____ and _____.

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5. The gas necessary for combustion is _____.

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6. Select the correct alternative from the given options .

Major component of CNG is _____

A. Butane

B. Methane

C. Ethane

D. Propane

Answer: b

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7. Select the correct alternative from the given options .

The products of combustion of glucose are

A. Water vapour , carbon dioxide

B. Water vapor , hydrogen

C. Hydrogen , carbon monoxide

D. Carbon monoxide , carbon dioxide

Answer: a

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8. Select the correct alternative from the given options .

Who named the active component of air as oxygen?

A. Cavendish

B. Mayow

C. Lavoisier

D. Priestley

Answer: c

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9. Select the correct alternative.

A. Carbon dioxide

B. Phosphorus

C. Lime water

D. Anhydrous copper sulphate

Answer: d

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10. Select the correct alternative from the given options .

The evelope of air that surrounds the earth is called

A. Atmosphere

B. Lithosphere

C. Hydrosphere

D. Exosphere

Answer: a

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11. Select the correct alternative from the given options.

Identify the true statement among the following options.

A. Air occupies space

B. Air has mass

C. Air can be compressed

D. Air does not dissolve in water

Answer: d

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12. Select the correct alternative from the given options .

The gas assimilated by plants for the synthesis of proteins is _____.

A. Oxygen

B. Nitrogen

C. Carbon dioxide

D. Carbon monoxide

Answer: b

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13. Select the correct alternative from the given options .

Gas X $\rightarrow$ Combustible and not a supporter of combustion Gas $\rightarrow$ Combustible as well as a supporter of combustion . What could be X and Y ?

A. X $\rightarrow$ Oxygen , Y $\rightarrow$ Nitrogen

B. X $\rightarrow$ Carbon dioxide , Y $\rightarrow$ Oxygen

C. X $\rightarrow$ Oxygen , Y $\rightarrow$ Carbon dioxide

D. X $\rightarrow$ Carbon dioxide , Y $\rightarrow$ Argon

Answer: b

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14. Select the correct alternative from the given options .

The fuel used in cement factories , steel mills and glass factories is _____.

A. LPG

B. Wood

C. Coal

D. CNG

Answer: c

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15. Fill in balanks.

The products of combustion of fossil fuels are _____ and _____.

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16. The increase in the proportion of _____ in air leads to global warming.

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17. $SO_3 + H_2O \rightarrow$ _____.

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18. The gases which cause acid rain are _____ and _____.

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19. Select the correct alternative from the given options.

Identify the true statement among the following options.

A. CO is a greenhouse gas.

B. Global warming decreases the fertility of soil.

C. Global warming causes melting of ice caps.

D. Acid rain causes unseasonal rains.

Answer: c

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20. Select the correct alternative from the given options.

Which among the following is the source of SO_2 ?

A. Air conditioners

B. Thermal power plants

C. Refrigeration systems

D. Dcgradation of organic wastcs

Answer: b

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Short Answer Type Questions

1. Match the following.

Column A		Column B
(A)Nitrogen	()	(a) soft drink
(B) Oxygen	()	(b)Growth of plants
(C) Carbon dioxide	()	(c)Snow , fog , mist
(D) Argon	()	(d) Combustion
(E)Water vapour	()	(e)Electric bulbs

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2. What Is Combustion?

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3. Write the properties of air.

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4. Write some uses of air.

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5. Explain the importance of water vapour present in the atmosphere.

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6. Calculate the volume of oxygen and nitrogen present 250 l of air.

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7. Name the products formed in the following.

(a) Carbon + Oxygen $\rightarrow$

(b) Glucose + Oxygen $\rightarrow$

(c) Phosphorus pentoxide + Water $\rightarrow$

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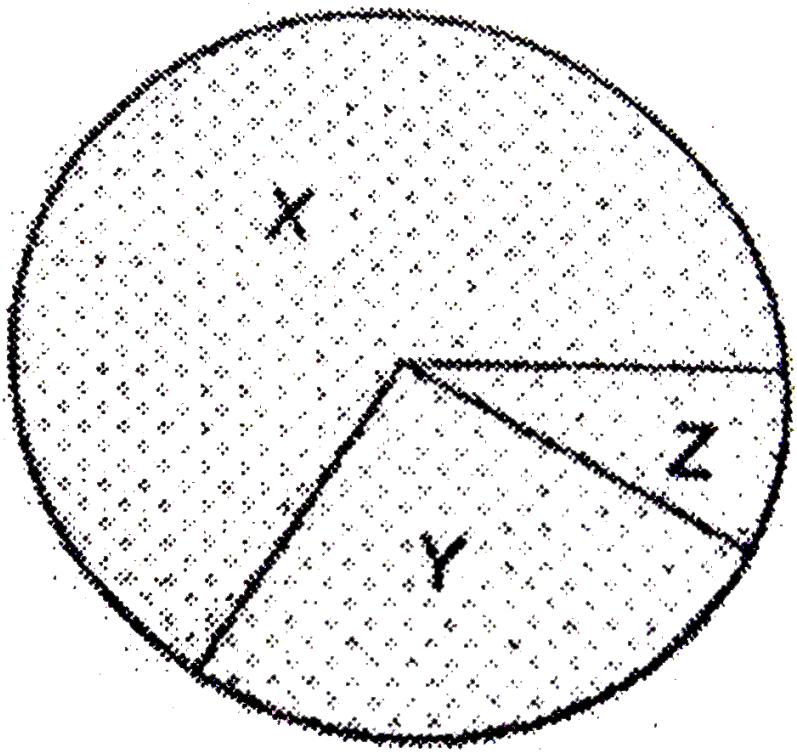
8. The composition of air in terms of percentage of its varous components is given.

(a) Identify X and Y.

(b) Mention any two uses of X and Y .

(c) identify the gases present in Z.



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9. How is the balance of oxygen in atmospheric air maintained ?

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10. Both the active component and the inactive component of play important roles . Illusrate.

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11. Gas X si the heaviest component of natural air.

(a) Identify X.

(b) Mention the characteristic properties of X pertinent to combustion.

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12. The mountaineers carry oxygen gas cylinders with them while climbing high mountains . Give reasons.

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13. Thought air contains only about 0.03% of carbon dioxide , it is a very important component of air. Give reasons.

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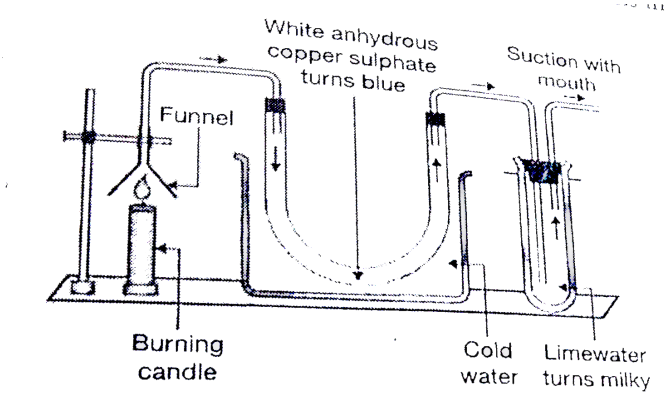
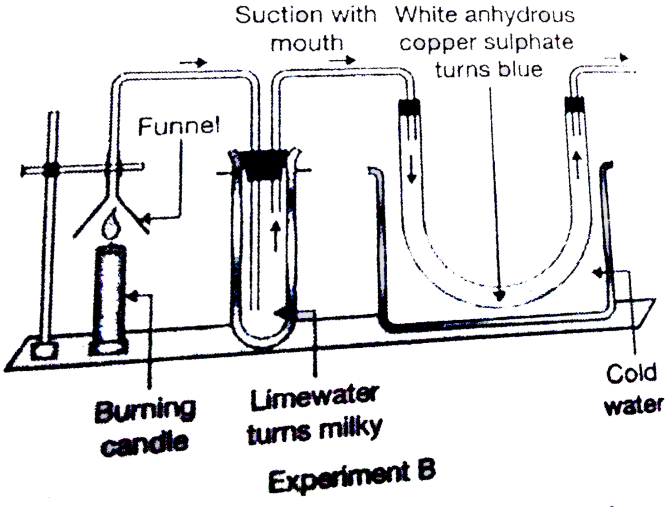
14. The following two experiments are conducted to prove the release of carbon dioxide and water vapor due to the burning of candle . Between the two experiments which is correct ? Correct ? Give reasons in support

of your answer.



Experiment A



Experiment B

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15. What is the process, in which antibody comes in contact with antigen and convert them in harmless insoluble matter, called

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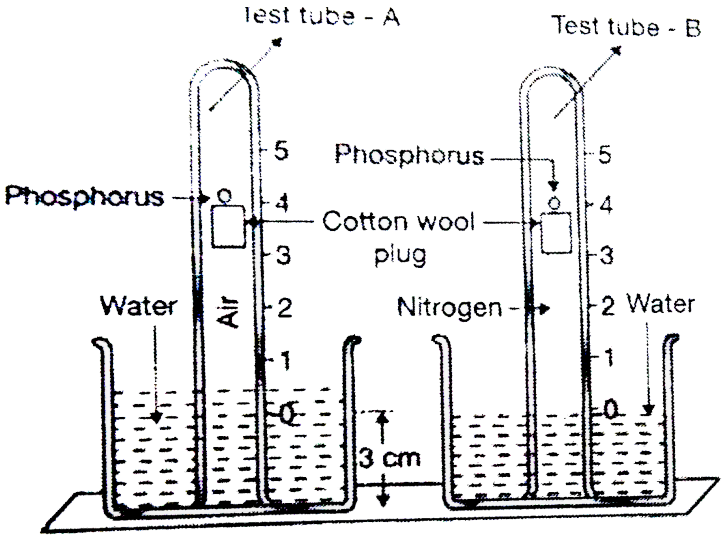
16.



(a) Identify the mistakes (s) in the diagrams and give justification.

What inference can be drawn from above diagrams ?

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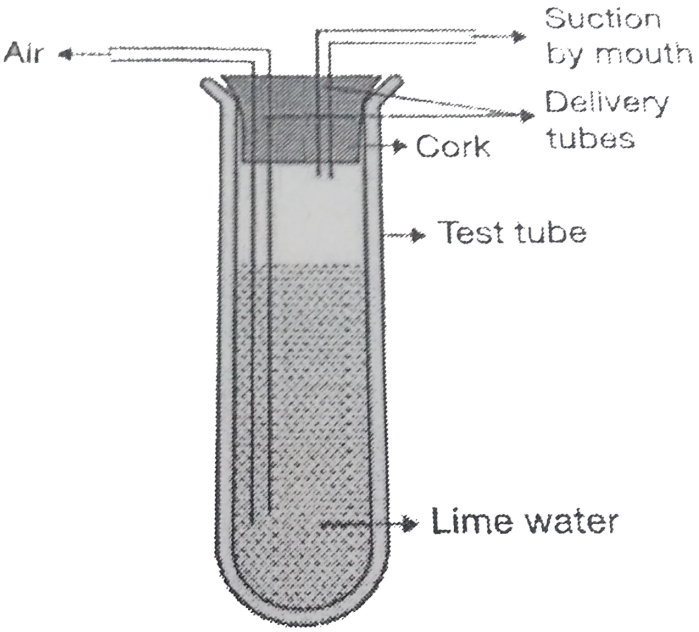

17.

(a) Write the chemical name of the substance taken in the test tube.

(b) What is the observation ? Give reasons.

(c) The air present in the test tube as shown in the diagram is sucked out . why ?

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18. Can an empty bottle be filled with water , when it is inverted into a basin of water vertically ?

If not , what is the correct way of filling the bottle with water ? Justify your answer.

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19. (a) Mention the substance used in white washing.

(b) State the reason for using this substance for the above purpose.

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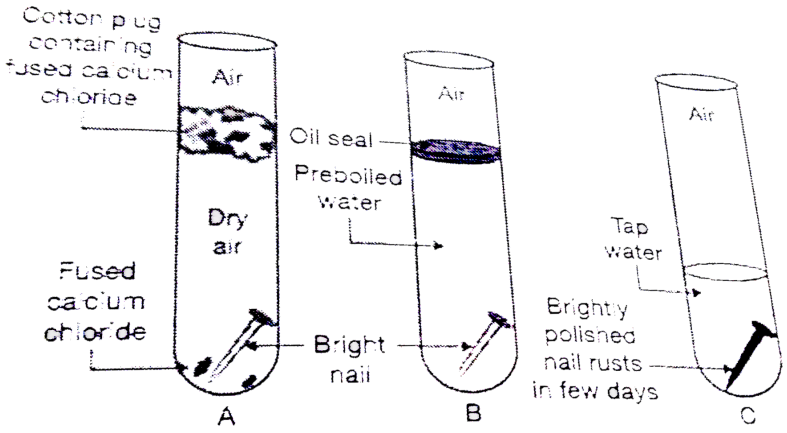
20. Answer the following questions based on the diagram given.



(a) Predict the obervations . Justify .

(b) Draw the conclusions based on the above obervations.

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21. GLOBAL WARMING

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22. What is air pollution?

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23. Mention the effects of acid rain .

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24. What are the different ways of minimizing air pollution?

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25. Why are tall chimneys recommended for factories?

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26. Give reasons for the following.

(a) Policemen regulating traffic often wear masks.

(b) When water is heated , bubbles are observed.

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27. It is not advisable to cook food on a wood fire in a closed room . Give reasons.

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28. Between galvanized iron containers and tinned iron containers which are used to preserve food material ? Justify your answer.

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29. Explain the role of catalytic converters in automo - bile engines.

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Concept Application

1. Gas X is the major component of air . Among the following identify the true statement regarding X .

A. X is used as a fire extinguisher.

B. X is essential for rusting.

C. X is highly soluble in water.

D. X is a very unreactive gas.

Answer: d

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2. Gas X is an active component of air . X reacts with caobon to form gas Y. Y is one of the products of _____ and _____.

A. respiration , combustion

B. photosynthesis , respiration

C. combustion , transpiration

D. photosynthesis, transpiration

Answer: a

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3. The volume of oxygen present in 750 l of air is _____

A. 172.5 l

B. 187 .5 l

C. 157 . 5 l

D. 255.5 l

Answer: c

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4. The contituents present in the gases are responsible for acid rains are _____ and _____.

A. carbon , sulphur and oxygen

B. sulphur , nitrogen and oxygen

C. carbon , fluorene and chlorine

D. chlorine , fluorrnr and oxygen

Answer: b

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5. Iron cans used for storage of foodstuffs are coated with

A. zinc

B. tin

C. chromium

D. aluminium

Answer: b

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Assessment Test Test 1

1. Why do earthworms come out of soil in rainy season?

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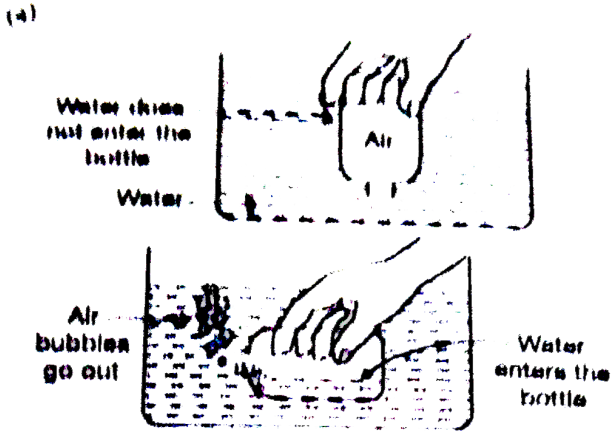
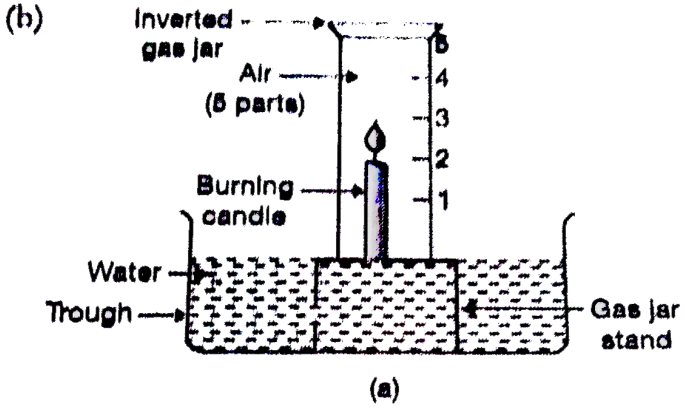
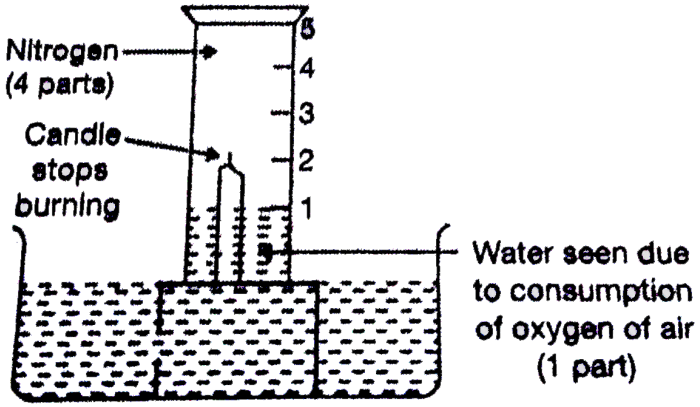
2. What conclustions can be draw based on the following diagrams ?



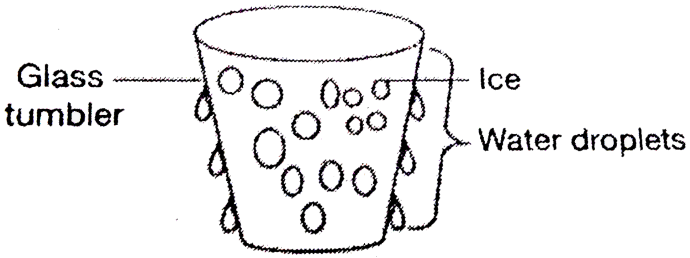


(a)



(b)

(c)



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3. The dust particles come into air from a number of sources . Give some examples for such sources.

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4. Name the component of air which extinguishes fire . Give reasons.

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5. What are the major components of air ? Among these , which is the active component and which is the inactive component ? Give any four

characteristics of air as a mixture.

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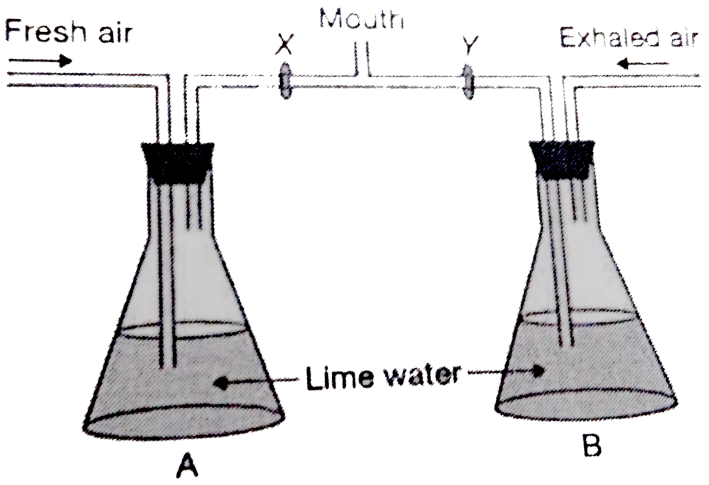
6. Observe the figure given below and answer the following questions.

(a) Will the observation be same in both the flask ?

(b) What inference can be drawn from the given experiments?



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7. Differentiate between

(a) Respiration and Combustion.

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8. Mention the essential requirements for rusting of iron.

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9. What is acid rain?

Watch Video Solution

10. What are the effects of oxides of oxides of sulphur and nitrogen on the atmosphere?

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11. Why are industrial areas prone to acid rain?

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12. During an incident of fire , one is advised to wrap a woolen blanket over a burning object. Explain why?

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13. Prove that 'Air contains dust and smoke' .

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14. How balance of oxygen and carbon dioxide in the atmosphers is maintained?

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15. How will you show that air is essential for burning ?

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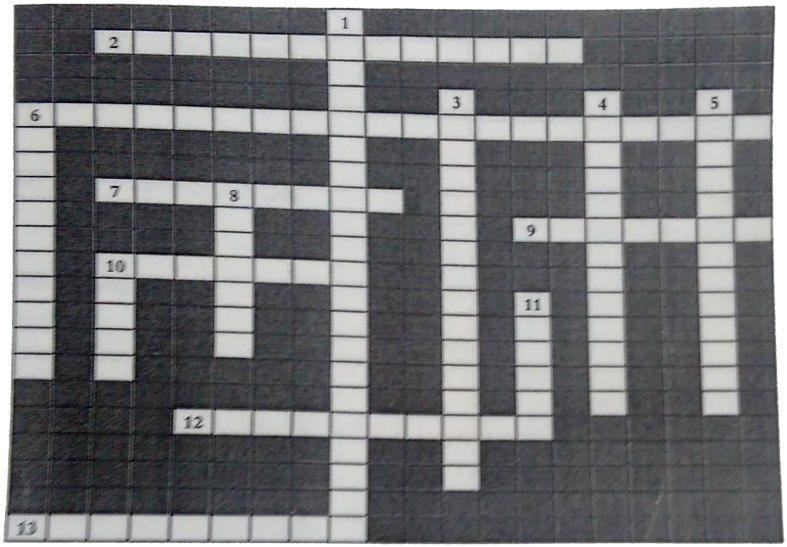
Crossword



1.

Across

2. The process of coating of thin layer of zine on iron
6. The full form of CNG
7. The inactive component of air
9. The process of coating of thin layer of tin on iron
10. Air is considered as
12. The process of burning of a substance in the prence of air
13. With increase in height the percentage of oxygen in air_____.

Down

1. Th
3. Lin
4. Gr
5. Th
6. Th
8. Th
10. C
11. T

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