

Paper 1

Answer **all** questions. Each question is followed by four options, **A, B, C** and **D**. For each question, choose **one** answer only.

1.

Gas	Percentage of air content / %
<i>P</i>	21
<i>Q</i>	0.03

The table above shows gases *P* and *Q* and their content in air. What is represented by gas *P* and *Q*?

- |                         |                |
|-------------------------|----------------|
| <i>P</i>                | <i>Q</i>       |
| <b>A</b> Nitrogen       | Carbon dioxide |
| <b>B</b> Oxygen         | Nitrogen       |
| <b>C</b> Carbon dioxide | Oxygen         |
| <b>D</b> Oxygen         | Carbon dioxide |

2. Among the following, which is the confirmatory test for carbon dioxide?

- A** Turns lime water cloudy
- B** Ignites glowing wooden splinter
- C** Produces 'pop' sound with a lighted wooden splinter
- D** Turn bicarbonate indicator from yellow to purple

3.

- Acidic
- Dissolves in sodium hydroxide solution

Gas *X* has the above properties. What is gas *X*?

- A** Oxygen
- B** Hydrogen
- C** Carbon dioxide
- D** Nitrogen

4. Among the following pollutants, which causes the depletion (thinning) of the ozone layer?

- A** Nitrogen dioxide
- B** Chlorofluorocarbon
- C** Sulphur dioxide
- D** Carbon dioxide

5. Among the following, which are properties of oxygen?  
**I** Neutral  
**II** Very soluble in water  
**III** Support combustion  
**A** I and II only  
**B** I and III only  
**C** II and III only  
**D** I, II and III
6. Which of the following gases will dissolve in rainwater to form acid rain?  
**A** Nitrogen dioxide  
**B** Chlorofluorocarbon  
**C** Nitrogen  
**D** Carbon dioxide
7. Which of the following can be used to test the present of carbon dioxide?  
**I** Alkaline pyrogallol solution  
**II** Lime water  
**III** Bicarbonate indicator  
**A** I and II only  
**B** I and III only  
**C** II and III only  
**D** I, II and III
8. A gas forms 4 % of exhaled air. What gas is it?  
**A** Oxygen  
**B** Nitrogen  
**C** Inert gas  
**D** Carbon dioxide
9. What is the gas needed for combustion?  
**A** Inert gas  
**B** Nitrogen  
**C** Oxygen  
**D** Carbon dioxide

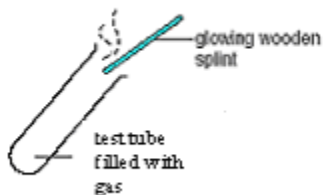
10.

Gas	Condition
<i>X</i>	Releases during respiration
<i>Y</i>	Absorbs during respiration

The table above shows gases *X* and *Y* and their conditions during respiration in living things. What are represented by gases *X* and *Y*?

- |                         |                |
|-------------------------|----------------|
| <i>X</i>                | <i>Y</i>       |
| <b>A</b> Oxygen         | Nitrogen       |
| <b>B</b> Nitrogen       | Carbon dioxide |
| <b>C</b> Carbon dioxide | Oxygen         |
| <b>D</b> Oxygen         | Carbon dioxide |

11.



The diagram above shows a confirmatory test of a gas. If the glowing wooden splinter burst into flame, what is the gas?

- A Oxygen
- B Nitrogen
- C Hydrogen
- D Carbon dioxide

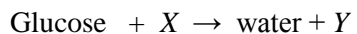
12.

- Turns lime water cloudy
- Extinguishes the burning wooden splinter

Gas X has properties shown above. What is other property of gas X?

- A Very soluble in water
- B Dissolves in alkaline pyrogallol solution
- C Turns moist red litmus paper blue
- D Turns purple bicarbonate indicator yellow

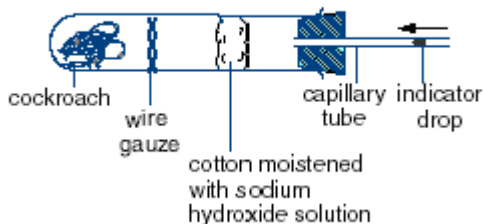
13.



The diagram above shows an equation for the respiratory process. What are the percentages of gases X and Y in ordinary air?

- |   | X    | Y      |
|---|------|--------|
| A | 78 % | 21 %   |
| B | 21 % | 0.03 % |
| C | 16 % | 4 %    |
| D | 21 % | 4 %    |

14.



At the end of the experiment, it is found that the indicator drop in the diagram above moves towards the boiling tube. This is because the

- A indicator drop evaporates
- B cockroach releases carbon dioxide
- C cockroach absorbs oxygen
- D air in the boiling tube expands

15.

Gas	Percentage in air / %
<i>P</i>	78
<i>Q</i>	0.03
<i>R</i>	21
<i>S</i>	0.9

The table above shows gases *P*, *Q*, *R* and *S* and their percentages in air. Which of the gas needed for combustion?

- A *P*
- B *Q*
- C *R*
- D *S*

16. Which of the following explain why carbon dioxide turns purple bicarbonate indicator yellow?

- A Carbon dioxide has acidic property
- B Carbon dioxide has alkaline property
- C Carbon dioxide is corrosive
- D Carbon dioxide dissolves in bicarbonate indicator

17. Why is carbon dioxide used in fire extinguishers?

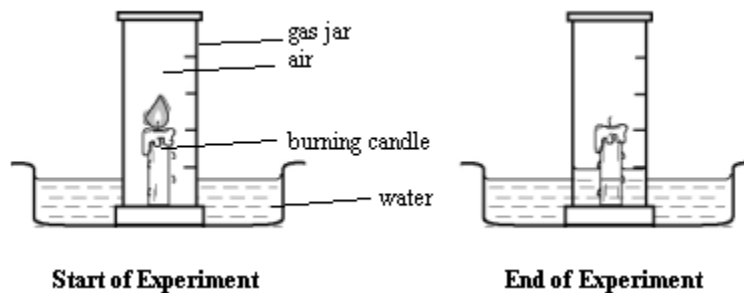
- A It is not reactive chemically
- B It does not support combustion
- C It is denser than air
- D It does not burn by itself

- 18.** When air is exhaled onto a piece of blue anhydrous cobalt chloride paper, it turns pink. This activity indicates that exhaled air contains
- A** carbon dioxide
  - B** oxygen
  - C** heat
  - D** water vapour
- 19.** Which of the following is the effect of lead on health?
- A** Causes sterility
  - B** Causes brain damage
  - C** Causes deformities in foetuses
  - D** Damages breathing tracts
- 20.** Gas *P* is absorbed during respiration. What is the property of gas *P*?
- A** Does not support combustion
  - B** Has pungent smell
  - C** Does not have any effect on litmus paper
  - D** Turns lime water cloudy

Paper 2

Answer the question.

The set-up of apparatus shown below was prepared to study the content of a gas in ordinary air. It was found that the level of water in the gas jar rose when the candle went off.



(a) What is the gas used for combustion?  
\_\_\_\_\_

(b) Based on the observation, what is the fraction of air that had been used up for burning?  
\_\_\_\_\_

(c) From your answer in (b), what is the conclusion that can be made in this experiment?  
\_\_\_\_\_

(d) Fill in the table below to show the percentages of gases in the gas jar at the end of the experiment.

Gas	Percentage / %
Nitrogen	
Oxygen	
Inert gas	

(e) (i) How is the content of carbon dioxide in the gas jar change at the end of experiment?  
\_\_\_\_\_

(ii) Explain your answer in (e) (i).  
\_\_\_\_\_

**Answers:**

**Paper 1**

1	<b>D</b>	11	<b>A</b>
2	<b>A</b>	12	<b>D</b>
3	<b>C</b>	13	<b>B</b>
4	<b>B</b>	14	<b>C</b>
5	<b>B</b>	15	<b>C</b>
6	<b>A</b>	16	<b>A</b>
7	<b>C</b>	17	<b>B</b>
8	<b>D</b>	18	<b>D</b>
9	<b>C</b>	19	<b>B</b>
10	<b>C</b>	20	<b>C</b>

**Paper 2**

- (a) Oxygen
- (b) One fifth (1/5)
- (c) One-fifth of air consists of oxygen
- (d) 78 %; 0 %; 0.9 % (or 1 %)
- (e) (i) Increases  
(ii) The burning of candle releases carbon dioxide