
Revision Exercise on Hydrogen and Oxygen

Form Two

RSE009

Instructions:

- Answer all questions in the spaces provided.
- Estimated time 90minutes.

1. Match the uses of Hydrogen gas in LIST A with the corresponding properties in LIST B by writing the letter of the correct response beside the item number.

LIST A	LIST B
(i) Inflating weather balloons	A. Highly flammable
(ii) Manufacturing of Ammonia	B. Lighter than air
(iii) Manufacture of margarine	C. Reducing agent
(iv) Production of oxy-hydrogen flame	D. Neither acidic nor basic
(v) Manufacture of hydrochloric acid	E. It readily combines with chlorine
	F. It is denser than air
	G. It readily combines with nitrogen

Answers

List A	i	ii	iii	iv	v
List B					

2. Gas "L" has the following properties: it is highly flammable, readily combines with other elements, readily reacts with other chemical substances, and it is a strong reducing agent.

(a) Name gas "L".

(b) What is the method used to collect gas "L"?

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(c) Give four uses of gas "L".

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3. Hydrogen gas is prepared in the laboratory in different ways. The most common method is by the action of dilute acids on metals.

Draw a neat well labeled diagram for the laboratory preparation of hydrogen gas.

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i. Write a balanced chemical equation for this laboratory preparation of hydrogen gas.

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ii) Relating to its property on each, explain two uses of hydrogen gas.

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4. (a) Gas R was prepared in the laboratory by two students. It was found that gas R could harden oil into margarine but is also rarely found in the atmosphere due to its low density.

i. Identify gas R.

ii. Mention two chemical reagents that can be used to prepare gas R in the laboratory.
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iii. Write down the word equation which represents a chemical reaction taking place in the preparation of gas R.
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iv. State how gas R can be identified chemically and uniquely.
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5. Hydrogen is the highest and most abundant element in the universe and is also the main element from which the sun and stars are composed.

(a) Draw a well-labeled diagram for the preparation of hydrogen gas in the laboratory.
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(b)(i) State the function of the delivery tube, cork, and gas jar.
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ii. Name a method of collecting hydrogen gas from the diagram drawn in (a) above.
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6. By giving one reason, explain the following facts.

i. During laboratory preparation of oxygen gas, little manganese dioxide is added to hydrogen peroxide.

Reason.....
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ii. Fish can obtain oxygen for respiration although they spend their lives in water.

Reason
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iii. Oxygen gas can be used for welding activities although it does not burn.

Reason
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7. Jane gets confused on how hydrogen gas properties relates with its uses. Assist Jane on how the properties of hydrogen can relate with its uses.

Property	Uses
i.	
ii.	

8. Two students planned to conduct an experiment for the preparation of gas Y. The following set of apparatus was used: flat-bottomed flask, thistle funnel, delivery tube, beehive shelf, and gas jars. Also, pieces of zinc metal and dilute hydrochloric acid were used.

(a) Identify gas Y.

(b) What apparatus is missing in the set provided?

(c) Draw a well-labeled diagram for the preparation of gas Y in the laboratory.

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9. (a) Why zinc is the most preferred metal during laboratory preparation of hydrogen gas by the action of dilute acids with metals? Explain

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(b) Hydrogen gas is a very promising energy source, yet its uses as a major source of energy are very limited. Explain this in term of its storage, safety and production.

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(c) Write the word equation for the laboratory preparation of gas Y.

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10. You are provided with the following materials from chemistry laboratory:

Apparatuses: Thistle funnel, delivery tube, beehive shelf, trough, gas jar, flat bottomed flask with its coke

Chemicals: Water, zinc granules, dilute hydrochloric acid

(a). i. What chemical substance can be prepared using materials mentioned above.

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.ii. Draw the diagram showing how you could arrange the apparatuses above in order to prepare a chemical substance you mentioned in 10(a) above

(b). i. How can the products mentioned in 10(a) above be collected?

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ii. Give four uses of the product mentioned in 10(a) based on its properties

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11. You are provided with two gas jars, one containing gas M and another containing gas N. Gas M is a strong oxidizing agent while gas N is a good reducing agent.

(a) What test can you conduct to identify each of the two gases?

Gas M

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Gas N

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(b) Mention four methods used to prepare gas N in the laboratory.

- (i)
(ii)
(iii)
(iv)

(c) Give four uses of gas M.

- (i)
(ii)
(iii)
(iv)

12. Wayne entered in the chemistry laboratory and saw various apparatuses and reagents on the table. He decided to prepare the gas using these reagents and apparatuses. The following table shows the list of what Wayne saw in the chemistry laboratory.

List of Apparatuses	Reagents
(i) Thistle funnel with cork	(i) Hydrogen peroxide
(ii) Round bottomed flask	(ii) Manganese (IV) oxide
(iii) Delivery tube	(iii) Water
(iv) Water trough	

(v) Gas jar	
(vi) Beehive shelf	
(vii) Stoppers	

(a) What is the gas that is likely to be prepared using the laboratory reagents and apparatuses shown above?

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(b) Write a well balanced formula equation for the reaction involved in the preparation of the gas above.

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13. A chemistry teacher wants to prepare oxygen gas by decomposition method. He appointed a form two student to collect apparati for his experiment

(i)List all apparati used for this experiment above

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(ii) State two reagents for the laboratory preparation of oxygen by decomposition

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(b)Write a word equation for the reaction between the two reagents above

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(c)State four physical properties of the gas produced.

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14. (a) All living things on the earth depend on substance Q which is found in air for their survival. Both marine and aquatic living organisms require that substance Q for respiration, and some industrial processes also require that substance Q.

i. What is the name of substance Q?

ii. Mention two methods by which the substance Q can be prepared in the laboratory.

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iii. Draw a neat, large, and well-labeled diagram for the setup for the preparation of substance Q if potassium chlorate were to be used.

iv. Write the word equation for the laboratory preparation of substance Q using the chemical mentioned in (a)(iii) above.

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(b) Write two (2) other uses of substance Q other than respiration.

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(c) What are the functions of manganese (IV) oxide in the preparation of the gas named above?

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(d) With the use of the diagram, show the laboratory set up for the preparation of the gas named above.

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(e) State the chemical test to identify the gas prepared above.

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Best regards,

The Diaprof Team

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