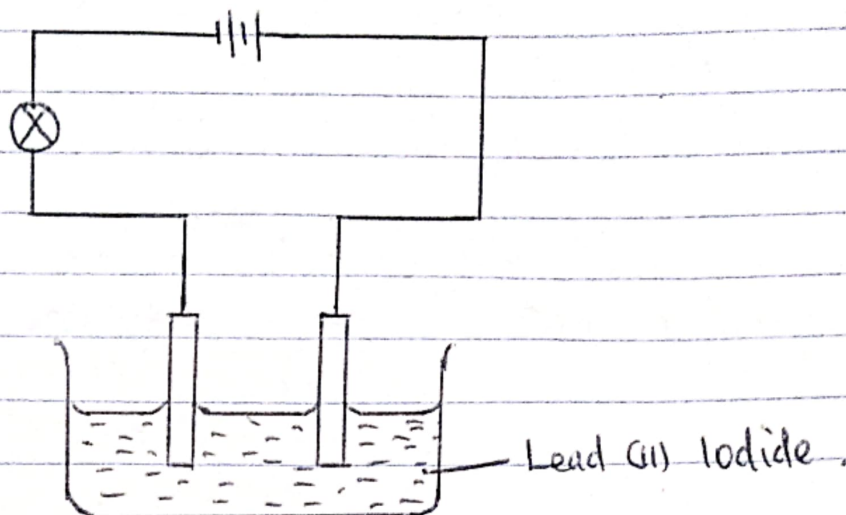


CHEMISTRY ASSESSMENT TEST.

TIME: 1HR 30MIN.

INSTRUCTION: Answer ALL questions using a blue pen.

1. The set up below was used to investigate electrical conductivity of lead (II) iodide. Study it and answer the questions that follow.



(i) Label the anode (1mk)

(ii) state one emission on the set up above (1mk)

(iii) If the emission is corrected, write an equation at the cathode. (1mk)

2. Explain why a burning magnesium continues to burn in a gas jar full of carbon (IV) oxide while a burning candle would be extinguished. (2marks)

3. Starting with calcium nitrate solution, describe how a pure dry sample of calcium carbonate can be prepared in the laboratory. (3 marks).

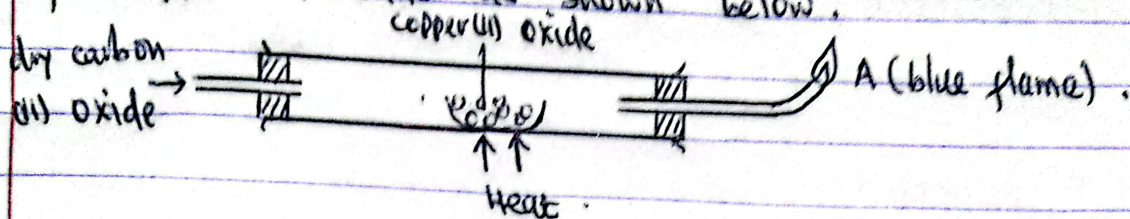
4. Explain why solid sodium chloride does not conduct electricity but aqueous or molten sodium chloride does. (2 marks)

5. A student wanted to prepare lead sulphate. He chose dilute sulphuric acid and lead carbonate. He put the acid in a beaker and added lead carbonate, but after a short while the reaction stopped. Explain why the reaction stopped. (2 marks)

6. State two properties that make carbon (IV) oxide suitable for use as a fire extinguisher. (2 marks)

7. If two unlabelled black powders were placed before you on the laboratory bench and you are told that they were copper (II) oxide and charcoal, what simple test would you perform to distinguish them? (1 mark).

8. Excess carbon (II) oxide gas was passed over heated sample of copper (II) oxide as shown below.



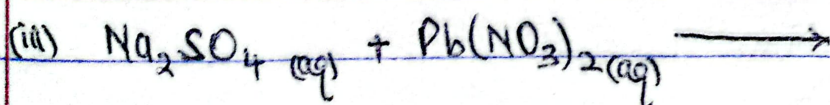
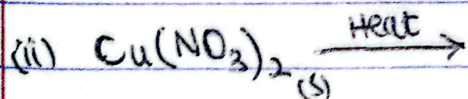
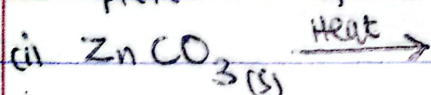
(a) What observation is made in the combustion tube after five minutes? (1mk)

(b) Write a balanced chemical equation for the reaction which took place in the combustion tube. (1mk)

(c) (i) What is burning at A? (1mk)

(ii) Write a chemical equation of the reaction taking place at A. (1mk)

9. Complete the following equations. (3marks)



10. Define the following terms.

(3 marks)

(i) Normal salt.

(ii) Efflorescence.

(iii) Hygroscopy.

11. (a) Differentiate between electrolysis and electrolyte. (2 marks)

(b) Lead metal and molten lead (II) bromide are known to conduct electric current. Outline the difference in their mode of conduction. (2 marks).

12. Carbon (II) oxide can be prepared by dehydration of ethanedioic acid

(a) Complete the following equation to show the reaction that takes place. (1 mark)



(b) Name another reagent that can be used to prepare carbon (II) oxide by dehydration. (1 mark).

13. Two allotropes of carbon are graphite and diamond.

(a) Explain why the density of diamond is higher than that of graphite. (1mk).

(b) Give one use of each of the ~~allotropes~~ and relate the use to properties of the allotrope. (2marks).

I. Graphite

Use:

Property:

II. Diamond

Use:

Property:

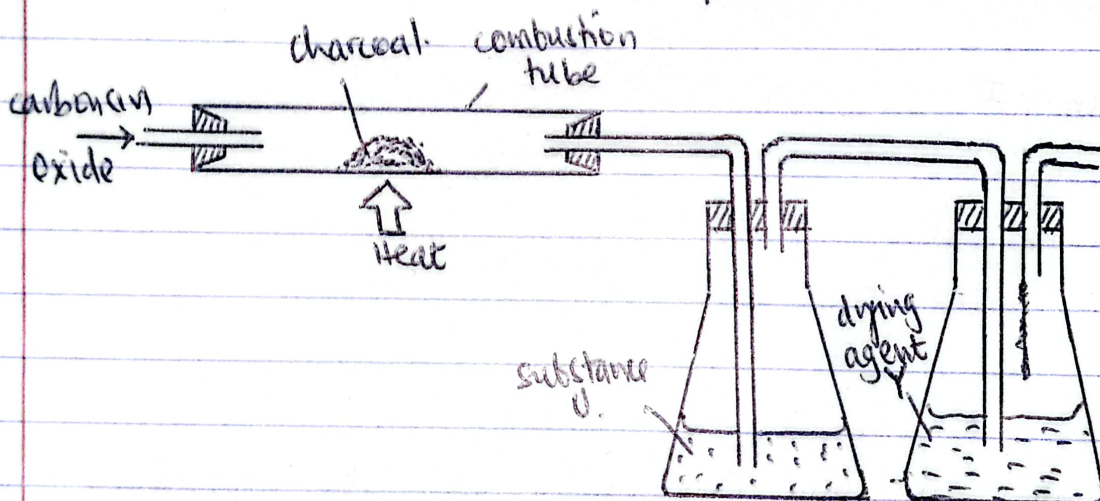
14. Concentrated sulphuric (VI) acid was left exposed in air for a few days. It was found that the level of the acid had risen.

(a) Why did the level of the acid in the container rise? (1mk)

(b) How is this property useful in the laboratory? (1mk).

15. Given solid ~~carbon~~^{sodium} carbonate, lead (II) nitrate crystals and water, explain how you can obtain a solid sample of lead (II) carbonate. (3 marks).

16. The figure below is part of a set up used to prepare and collect dry carbon (II) oxide from carbon (IV) oxide.



(i) complete the diagram to show how dry carbon (II) oxide gas is collected. (1 mark).

(ii) Identify:

• substance U and state its use. (1 mark).

• drying agent Y ($\frac{1}{2}$ mark).

(iii) Write a chemical equation for the reaction which takes place in the combustion tube. (1mk)

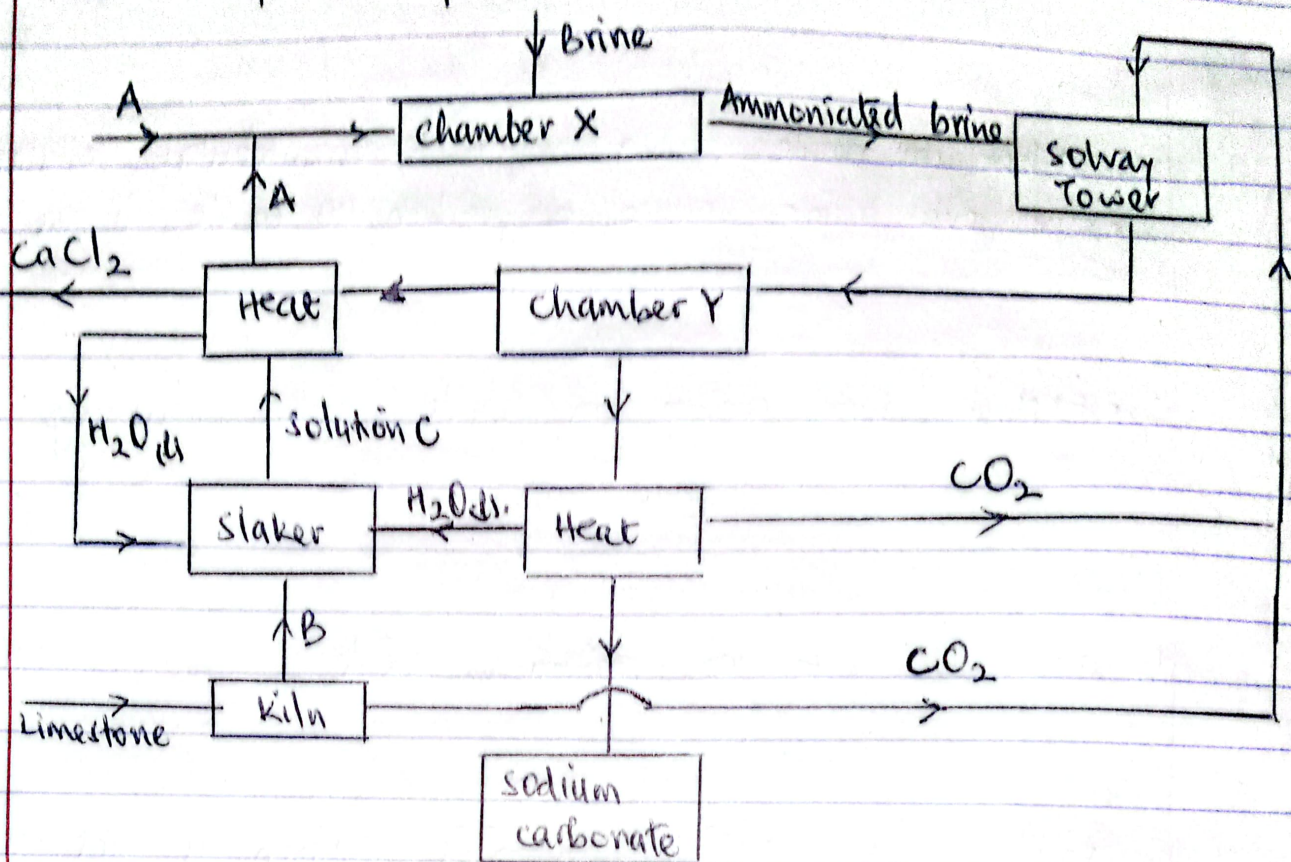
(iv) carbon (II) oxide is a major environmental pollutant.
• Give one major source of carbon (II) oxide in the atmosphere. (1mk)

• Explain how carbon (II) oxide causes poisoning. (1mk)

(b) state one use of carbon (II) oxide. (1mk)

(c) Explain why sodium hydroxide solution is not used in testing for carbon (IV) oxide gas, while calcium hydroxide is preferably used. (1mk)

17. The chart below represents the main steps in the large-scale manufacture of ~~anhydrous~~ sodium carbonate.



(a) Name substances A and B.

A

($\frac{1}{2}$ mark)

B

($\frac{1}{2}$ mark).

(b) Write down the chemical equation leading to formation of C. (1 mark)

(c) A stream of cold water is made to circulate around chamber X. What does this suggest about the reaction taking place. (1 mark).

(d) Name the process that takes place in chamber Y. ($\frac{1}{2}$ mark)

(e) state any two by-products recycled in the process. (2marks)

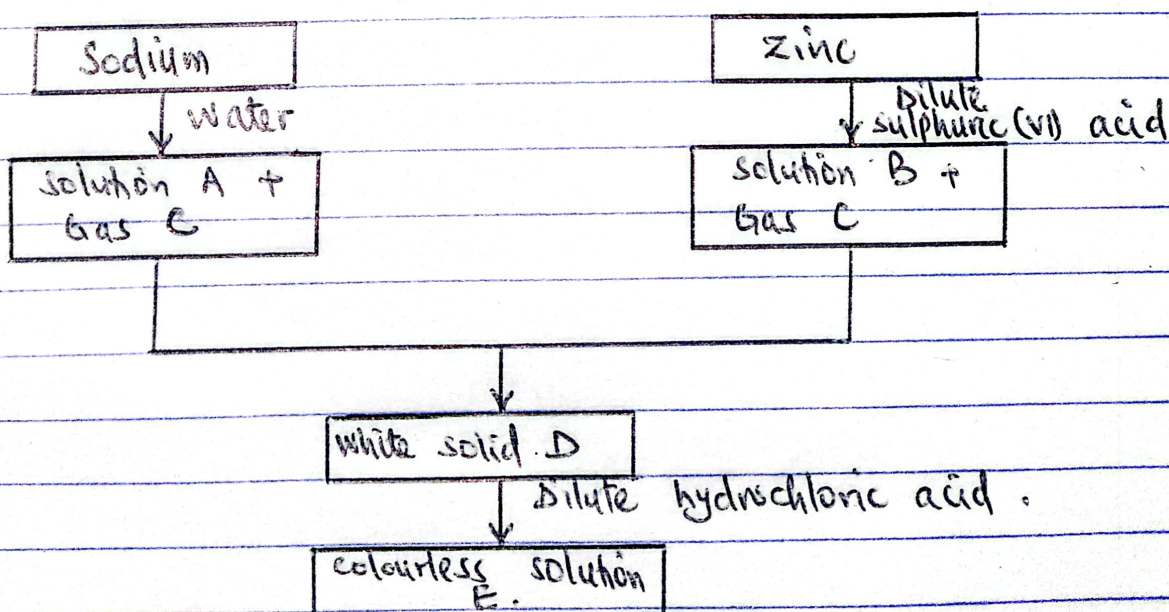
(f) In an experiment, wood charcoal was mixed with concentrated sulphuric (VI) acid in a test-tube. The mixture was then placed over a Bunsen burner flame for some time.

(i) write down the chemical equation of the reaction that takes place. (1mark).

(ii) state the property of charcoal investigated in (i) above. (1mark)

(g) mention any use of sodium carbonate. (1mark).

18. The scheme below shows the preparation of a certain salt. study it and answer the questions that follow.



(a) Identify the following substances
solution A.

(2 marks).

solution B

Gas C

solid D.

(b) Write an equation for the formation of colourless solution E (1 mark)

(c) Explain any two observations made when sodium reacts with water.
(2 marks)