

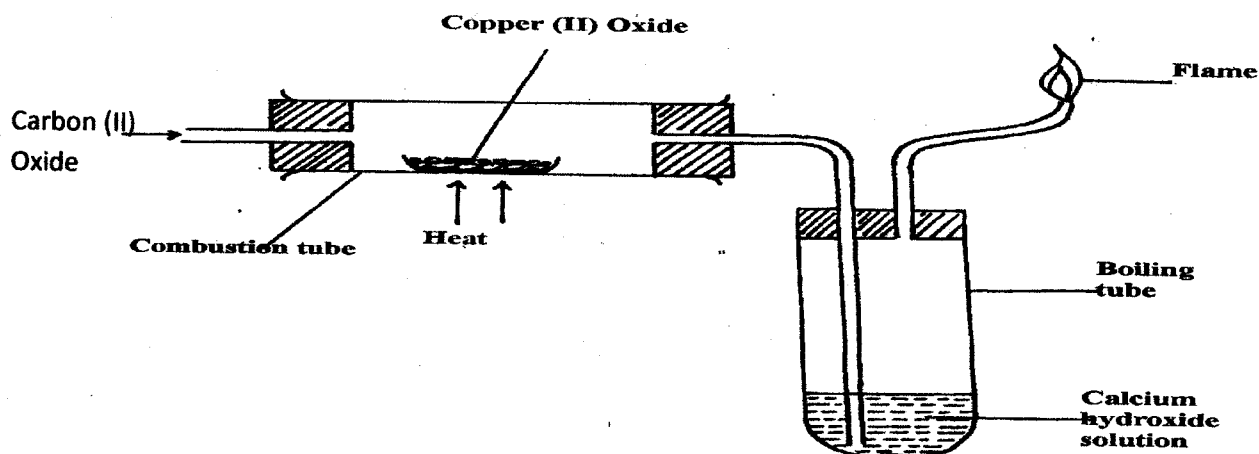
Adm No..... Name..... Class.....

FORM THREE CHEMISTRY MID TERM TEST
TERM 1 2015 Time 1½ Hours

INSTRUCTIONS

Answer ALL the questions in the spaces provided.

1. Study the experimental set-up below and answer the questions that follow.



- a) State **two** observations made in the set up as the experiment progressed. (2mks)
- b) By use of a chemical equation, explain the changes that occurred in the boiling tube. (2mks)
- c) Why was it necessary to burn the excess gas? (1mks)
- d) Write a balanced equations for the reactions that took place in the combustion tube. (1mks)

2. a) What is allotropy?

(1mks)

b) Give two examples of non crystalline forms of carbon.

(2mks)

3. When the oxide of element **H** was heated with powdered Carbon, the mixture glowed and Carbon (IV) oxide was formed. When the experiment was repeated using the oxide of element **J**, there was no apparent reaction

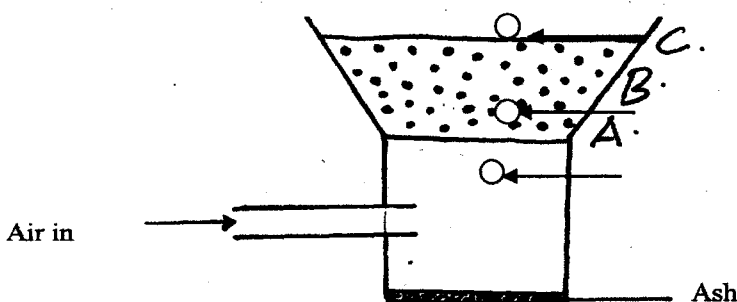
(a) Explain why there was no apparent reaction When the experiment was repeated using the oxide of element **J**. (2mks)

(b) Write a balance equation for the reaction between the oxide of H and carbon given that the valency of element H is 2. (1mks)

(c) Suggest two metallic elements represented by element **J**. (2mks)

(d) Arrange the elements **H**, **J** and Carbon in order of their decreasing reactivity (1mks)

4. The diagram below shows a charcoal stove with different regions



(a) Write an equation for the formation of the product in regions A, B and C. (3mks)

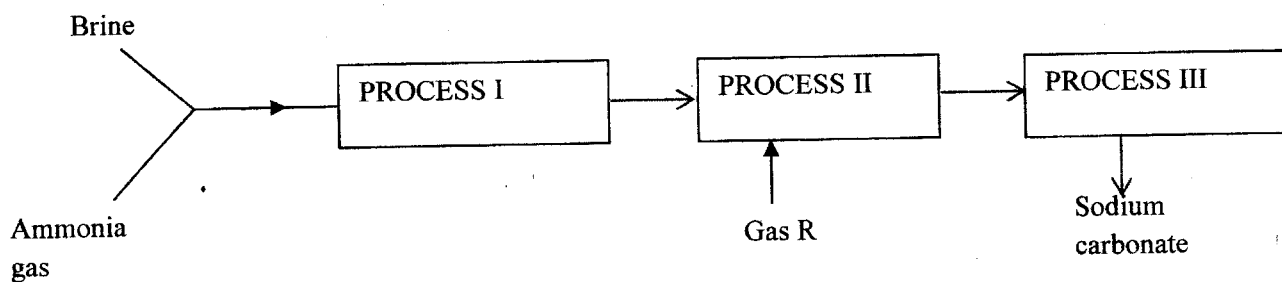
A

B

C

(b) How would one avoid the production of the product at B? Give a reason for your answer. (2mks)

5. Below is a simplified scheme of **Solvay process**. Study it and answer the questions that follow:



a) Identify gas R. (1mk)

b) Write two equations for the reaction that take place in process II. (2mks)

c) Show by an equation how sodium carbonate is obtained in process III. (1mk)

d) State another method of extraction of sodium carbonate. (1mik)

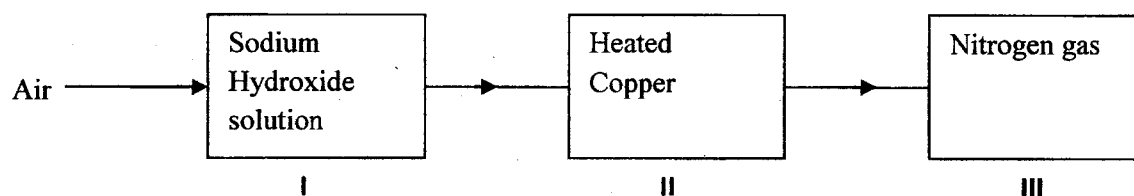
e) Give **two** uses of sodium carbonate.

(2mks)

f). Give two uses of carbon (IV) oxide other than the one illustrated in the flow diagram above.

(2mks)

6. The chart below shows a summary for the preparation of nitrogen gas from air



(a) What is the purpose of the sodium hydroxide?

(1mk)

(b) Write an equation for the reaction taking place in chamber II.

(1mk)

(c) The nitrogen gas obtained is not pure. Explain.

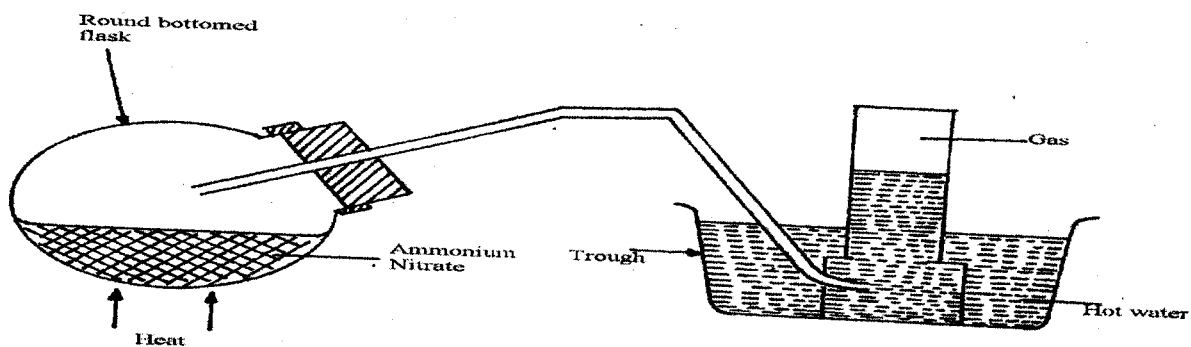
(1mk)

(d) In the space below draw a large well labeled diagram for the set up of apparatus that are used to prepare pure nitrogen from ammonium nitrite.

(3mk)

(e) Write a balance equation form the reaction that takes place in the set up you have drawn above. (1mk)

7. The diagram below shows the apparatus for the laboratory preparation of one of the oxides of Nitrogen



a) (i) Name the gas being produced.

(1mk)

(ii) Write the equation for the thermal decomposition of ammonium nitrate.

(1mk)

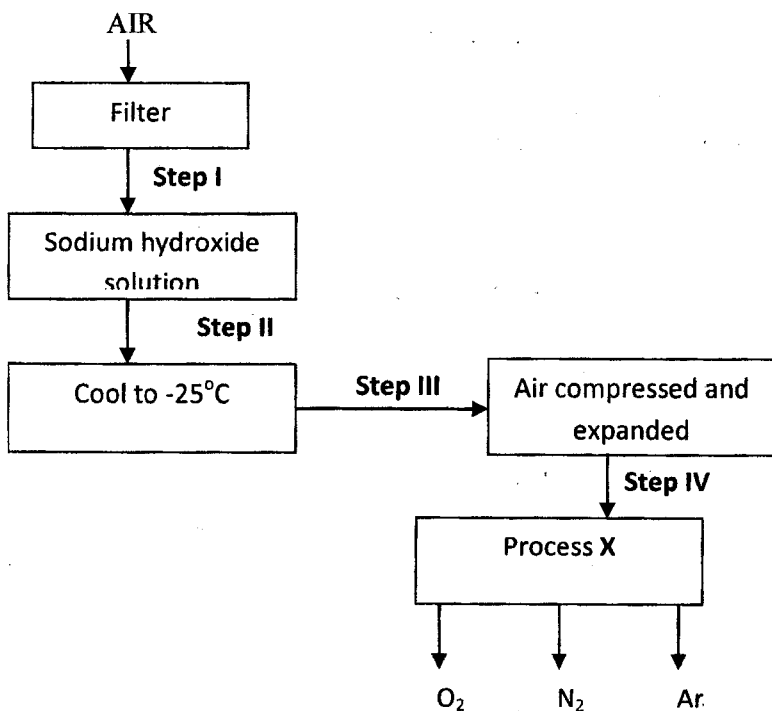
(iii) The gas is being collected over hot water. Explain.

(1mk)

(iv) State and explain the observations made when burning magnesium is lowered into a gas jar containing the gas.

(2mks)

8. The flow diagram below represents large scale manufacture of nitrogen. Study it and answer the questions that follow



- (a) Name another substance which can be used instead of sodium hydroxide. (1mk)
- (b) What is the function of filters? (1mk)
- (c) Identify the substance removed at **step III**. (1mk)
- (d) At what temperature does liquid oxygen distil? (1mk)
- (e) Identify **process X** (1mk)
- (f) Describe how **process X** occurs (2mk)
- (g) State **two** industrial uses of Nitrogen. (2mks)