

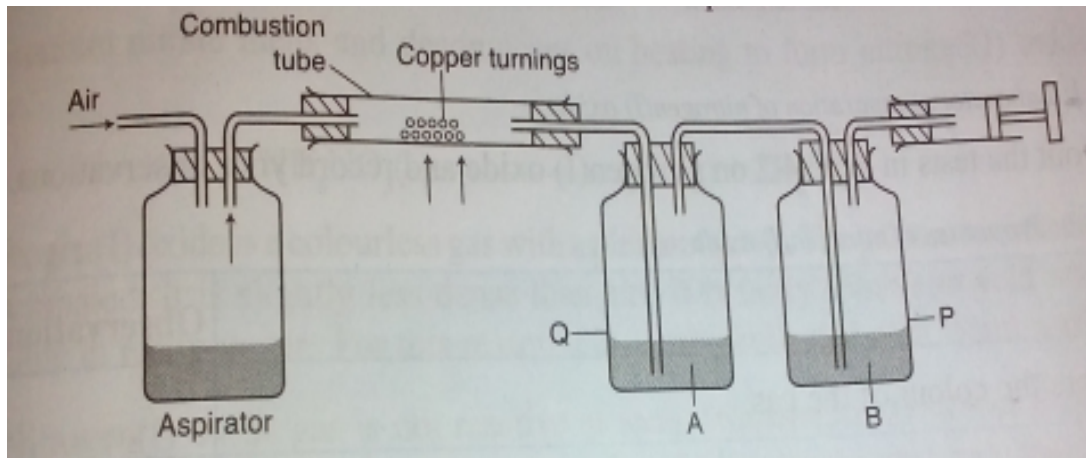
MIDWAY/JUJA GIRLS SCHOOLS
MID TERM II EXAM FOR YEAR 2020
FORM THREE: CHEMISTRY

TIME: 50 Minutes

Instructions

- Answer all questions in the spaces provided.
- All working must be clearly shown where applicable.

1) The set up below was used by a student to isolate dry nitrogen from air. Study it and answer the questions that follow.



- a) Name liquids A and B. (2mks)
- b) Write down the observation made in the combustion tube. (1mk)
- c) Write an equation for the reaction taking place in tube Q. (1mk)
- d) Name one impurity in the nitrogen gas collected. (1mk)

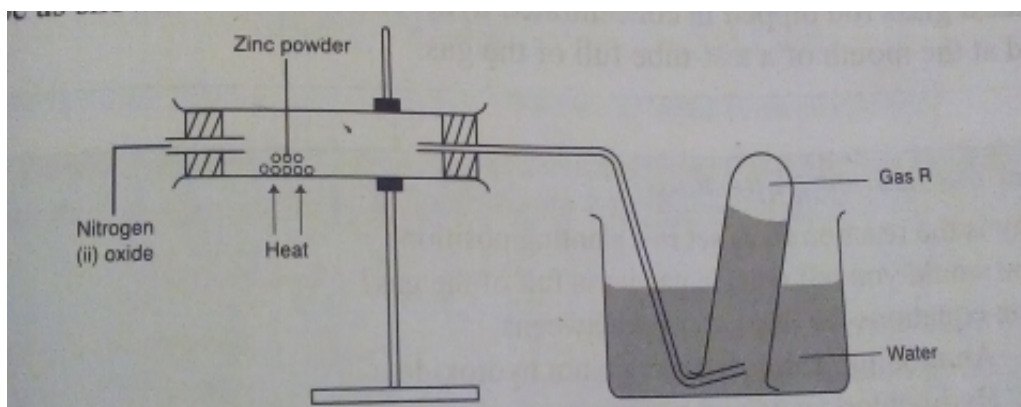
e) Nitrogen prepared in the laboratory by reacting ammonium chloride with sodium nitrite is usually less dense than that isolated from air. Give a reason. (1mk)

2) Explain why nitrogen is unreactive at low temperatures. (1mk)

3) State and explain the observation made when a gas jar containing nitrogen (II) oxide is exposed to air. (2mks)

4) State and explain the effect of nitrogen (I) oxide on a glowing wooden splint. (2mks)

5) A stream of dry nitrogen (II) oxide is passed over heated zinc powder in a combustion tube as shown.



a) State the observations made in the combustion tube. (1mk)

b) Name gas R. (1mk)

c) Why is it possible to collect gas R using the method shown? (1mk)

d) Write an equation for the reaction to show formation of gas R. (1mk)

6) Name one use of nitrogen (IV) oxide gas. (1mk)

7) When 17.12g of sodium nitrate were heated in an open test tube, the mass of oxygen gas produced was 1.72g. Given the equation of the reaction as.



Calculate the percentage of sodium nitrate that was converted to sodium nitrite. (Na = 23.0, N =14.0, O = 16.0). (4mks)

8) 20.0cm³ of a solution containing 4g per litre of sodium hydroxide was neutralized by 8.0cm³ of dilute sulphuric (VI) acid. Calculate the concentration of sulphuric (VI) acid in moles per litre. (Na = 23.0, O = 16.0, H = 1.0) (3mks)

9) When a hydrocarbon was completely burnt in oxygen, 4.2g of carbon (IV) oxide and 1.71g of water were formed. Determine the empirical formula of the hydrocarbon. (H = 1.0, C = 12.0, O = 16.0) (3mks)

10) a) State Boyle's law. (1mk)

b) A gas occupies 500cm^3 at 27°C and 100000 Pa . What will be its volume at 0°C and 101325 Pa ? (3mks)

End