

CHEMISTRY DEPARTMENT 2023
S.4 BRAINSTORMING TEST
TOPIC; NITROGEN AND ITS COMPOUNDS
SUBTOPIC; NITROGEN

NAME.....**INDEX number**.....

Signature **STREAM**.....

1. Although nitrogen is generally unreactive, it readily reacts with burning magnesium ribbon

(a) State why nitrogen is generally inert (01 mark)

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(b) Burning magnesium reacts with nitrogen

(i) Give a reason for the reaction (1½ marks)

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(ii) Write equation for the reaction (1½ marks)

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(c) Water was added to the product in (b) and a colourless gas **T** was evolved.

(i) Name **T** (0½ mark)

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(ii) Write equation for the reaction leading to the formation of **T** (1½ marks)

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(d) A piece of litmus paper was held over the reaction tube in (b).

(i) State what was observed (0½ mark)

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(ii) Explain your answer in (c) (i) (1½ marks)

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(iii) Name one other substance that can react with nitrogen the same way as magnesium (01 mark)

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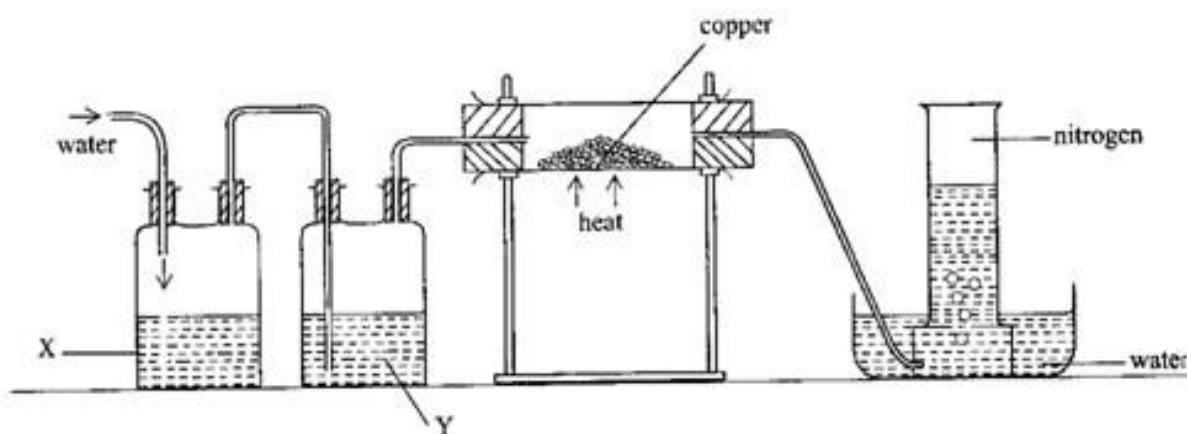
2. (a) (i) Name two **major** components of air and state their corresponding percentage composition by volume. (01 mark)

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(ii) Mention the method that can be employed to separate the components of air named in **a(i)**. Give a reason for your answer. (01 mark)

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(b) Study the setup of diagram below and use it to answer the questions.



(i) identify solutions **X** and **Y**

(01 mark)

X.....

Y.....

(ii) Write the equation for the reaction that took place in a wash bottle containing solution **Y** (1½ marks)

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(c) (i) State what is observed in the combustion tube.

(01 mark)

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(ii) Write the chemical equation for the reaction that took place. (1½ marks)

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END.