CHEMISTRY DEPARTMENT 2023

S.4 BRAINSTORMING TEST

TOPIC; NITROGEN ANT ITS COMPOUNDS

SUBTOPIC; NITRIC ACID

NAME……**INDEX number**…….

Signature …… **STREAM**…….

1 (a) (i) Name two substances from which nitric acid can be prepared in the laboratory (01 mark)

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(ii) Write an equation for the reaction between the substances you have named

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(b)(i) Write equation(s) for the reaction(s) between nitric acid and copper (03mks)

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(ii) Using equations only, show how nitric acid can be manufactured using hydrogen and nitrogen as raw materials. (06 marks)

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2.(a) Write equation for the reaction between concentrated sulphuric acid and

(i)Sulphur (1½ marks)

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(ii) phosphorus (1½ marks)

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(iii) carbon (1½ marks)

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(iv)sulphur dioxide (1½ marks)

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(v)iron(ii) ions (1½ marks)

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(c)Describe a test that can be used to test for a ***nitrate ion*** in the laboratory

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3. Nitrogen forms a **series** of oxides

(a) Write the formula of the oxides of nitrogen and the class of oxides to why each one belongs

Formula of the oxide	**Class of the oxide**

(b) One of the oxide of nitrogen turns brown when exposed to air

(i) Name the oxide

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(ii) Explain why the named oxide turns brown. Include an equation in your answer.

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(c) One of the oxides of nitrogen reacts with water

(i) Name the products of the reaction of the oxide with water

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Write equation for the reaction that takes place (1½ marks)

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4. (a) State what is observed and write equation for the reaction when the following are heated to a constant mass

(i) Lead(II) nitrate (1½ marks)

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(ii) Zinc nitrate (1½ marks)

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(iii) Aluminium nitrate (1½ marks)

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(iv)Potassium nitrate (1½ marks)

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(v) Silver nitrate (1½ marks)

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(ii) Ammonium nitrate (1½ marks)

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(v) Ammonium nitrite (1½ marks)

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(vi) Ammonium carbonate (1½ marks)

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(vii) Ammonium sulphate (1½ marks)

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(viii) Ammonium chloride (1½ marks)

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5. (a) When dilute nitric acid was reacted with copper, a colourless gas **G** which turned brown when exposed to air to air was evolved.

(i) Name gas **G**

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(ii) Write the equation for the reaction leading to the formation of Gas **G**

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The brown gas

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(iii) Write an equation for the reaction that would take place if the brown gas was dissolved in water (1½ marks)

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(iv) State what would be observed if concentrated nitric acid was heated with iron(II) sulphate solution

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(e) State one industrial use of each of the following

(i)Nitrogen (01 mark)

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(ii)Ammonia (01 mark)

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(iii)Nitric acid (01 mark)

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END.