**LIGHT ACADEMY**



**BOYS’ SECONDARY SCHOOL**

**TERM 3 HOLIDAY PACKAGE**

**S3CHEMISTRY**

1. 25cm3 of 0.2M sodium hydroxide solution neutralized 12.5cm3 of 0.4M solution of an acid. Calculate
   1. the number of moles of sodium hydroxide that reacted

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* 1. The number of moles of acid that reacted

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* 1. The molar ratio of alkali to acid for the reaction

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1. A compound Q contains 7.8g of potassium, 3.2g of sulphur and 6.4g of oxygen. If the relative formula mass of Q is 174,
   1. calculate the simplest formula

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* 1. determine the molecular formula of Q

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* 1. What is the name of compound Q [k = 39, S = 32, O = 16]

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1. Ammonia gas can be prepared from a reaction between hydrogen gas and nitrogen.
   1. Write an equation for the reaction

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* 1. State any three factors affecting the yield of ammonia from the reaction

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* 1. Under a certain temperature and pressure, hydrogen reacts with nitrogen. Calculate the volume of nitrogen required to react with 150cm3 of hydrogen under the same conditions of temperature and pressure.

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1. 1**.**88g of copper (II) nitrate solid was strongly heated in a hard glass tube until there was no further change
   1. State what was observed

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* 1. Write an equation for the reaction

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* 1. Calculate the mass of the residue

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1. (a) Sulphurdioxide gas can be prepared by reacting sodium sulphite and acid X
2. Name the acid

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(ii) State the conditions for the reaction

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1. Excess sulphurdioxide was bubbled into a solution of sodium hydroxide containing blue litmus paper.
   1. State what was observed

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* 1. Write the equation for the reaction

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1. Sodiumhydroxide was added to the solution in (b) until in excess
   1. State what was observed

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* 1. Write an equation for the reaction

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6 (a) Name one substance that may be reacted with hydrochloric acid to generate chlorine.

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(b) State the conditions for the reaction

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(c) Write an equation for the reaction

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(d) Name a suitable drying agent for chlorine.

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(e)Write an equation for the reaction between dry chlorine gas and heated iron filings

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END