**KAHUHO UHURU HIGH SCHOOL**

**CHEMISTRY FORM TWO**

**TIME : I HOUR AND 30 MINUTES**

**TUNE UP**

**Answer all questions in the spaces provided.**

1. The chemical symbol for nitrogen is 14N

 7

1. Write the electronic configuration of nitrogen. (1 mark)
2. Which period and group does it occupy in the periodic table? ((1 mark)
3. Name the bond which exists in a nitrogen molecule. (1 mark)
4. (a) 750cm3 of a certain gas was found to have a mass of 2g at r.t.p. Calculate the relative molecular mass of the gas. (molar gas volume at r.t.p. = 24dm3)

(b) Sodium carbonate reacts with dilute hydrochloric acid to liberate carbon(IV) oxide gas. Calculate the volume of carbon (IV) oxide measured at STP which is evolved when 5 .3g of sodium carbonate completely reacts with dilute hydrochloric acid. (C=12 O=16, Na = 23) (Molar as volume at s.t.p = 22400cm3) (3 marks)

1. (a) (i) What is an acid? (1 mark)

 (ii) Name two mineral acids (1 mark)

(b) The following table gives PH values of certain solutions. Study it and answer the questions that follow.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Substance | P | Q | R | S | T | u |
| PH value | 14.0 | 1.5 | 7.0 | 5.2 | 8.0 | 6.5 |

1. Identify a solution with highest concentration of
2. hydrogen ions (H+)(0.5 mark)
3. Hydroxide ions (OH-) (0.5 mark)
4. Identify a solution that will react with zinc carbonate least rapidly. (1 mark)
5. Solution Q was reacted with solution T.
6. Name the type of reaction that occurs. (1 marks)
7. Give the formula of one of e products formed. (1 mark)

4 (a) Below is a scheme for reactions of ethene. Study it and answer the questions that follow.

|  |
| --- |
| CH2oHlCH2oH |

1. What type of addition reaction takes place in step II? (1 mark)
2. Give the formula of product z (1 mark)
3. State the conditions and reagents required to effect step 1 (1 mark)
4. The compound CH2=CH2 polymerizes to give a polymer of formula (CH2CH2) with molecular mass of 2856. Determine the number of monomers that polymerize (C=12, H= 1)
5. (a) Student reacted concentrated sulphuric (Vi) acid with sulphur. Write an equation for the reaction above (1 mark)

(b)Which property of sulphur is demonstrated above? (1 mark)

(c) State 2 uses of sulphur. (1 mark)

1. A piece of dry white phosphorous in a deflagrating spoon was lowered to the as jar contain in chlorine.
2. Which observation was made above? (1 mark)
3. Write an equation for the reaction above. (1 mark)
4. Which substance is formed when chlorine is bubbled through;
5. Dilute sodium hydroxide (0.5 mark)
6. Calcium hydroxide (0.5 marks)

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1. Name three elements that sublimes. (1.5 mark)
2. Consider the diagram below

Name the regions labeled

A

B

C

1. Write a word equation for the following chemical equation (3 marks)

Calcium sulphuric acid

Magnesium + hydrochloric acid

Sodium + water

1. State the test of the following gases (2 marks)
2. oxygen
3. ` hydrogen
4. State two chemicals that are used when preparing hydrogen gas. (2 marks)
5. State two elements that are used to test for the presence of water (2 marks)
6. Define the following
7. Compound (1 mark)

(b) Element (1 mark)

1. The chromatogram below shows the constituents of a flower extract. Study it and answer the questions below.
2. What does a and b represent. (4 marks)

(i)

(ii)

1. Give a reason to explain the different position of red and yellow pigments. (2 marks)
2. The table below shows the PH values of some solutions.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Solutions | J | K | L | M | N |
| PH | 4 | 13 | 2 | 10 | 7 |

Which solutions is likely to be

1. Potassium hydroxide (1 mark)
2. Lemon juice (2 marks)
3. Sulphuric acid. (2 marks)

(iv) ammonium hydroxide. (1 mark)