NAME……………………………………………………………………………………..ADM. NO………………………CLASS……………

GATITU GIRLS’ SECONDARY SCHOOL

CHEMISTRY FORM 4 TERM ONE

TUNE UP EXAMINATION 2017

INSTRUCTIONS

1.Write your name ,admission number and class in the spaces provided above .

2.Answer all the questions in the spaces provided .

3.Mathematical tables an d scientific calculators may be used .

4.All working must be shown where necessary .

 QUESTIONS

1.a)State the following laws

i)Boyles law (1mk)

ii)Charles law (1mk)

iii)Grahams law (1mk)

b)At 34oC a sample of brown gas occupies 250cm3 .Find the the new volume at 100 oC if the pressure remains constant .(3mks)

c)An organic compound has a percentage composition by mass of carbon 405 ,hydrogen 6.6% and oxygen 53.45 .Its molecular mass is 60 .Determine its :

i)Emperical formular (3mks)

ii)Molecular formular (2mks)

d)A gas occupies a volume of 600cm3 at a pressure of 760mmHg and 25 oC .What would it occupy at a pressure of 780mmhg pressure and temperature of 50 oC .(3mks)

2. 25cm3 portions of sodium carbonate solution was titrated with 0.2M hydrochloric acid.the table below shows the result obtained.

|  |  |  |  |
| --- | --- | --- | --- |
| TITRATION NO. | 1 | 2 | 3 |
| Final burette reading (cm3 | 23.4 | 33.3 | 23.2 |
| Initial burette reading (cm3 | 0.0 | 10.0 | 0.0 |
| Volume of acid used (cm3 |  |  |  |

a)Complete the table above. (1mk)

b)Determine the average volume of hydrochloric acid used . (1mk)

c)Write an equation for the reaction that takes place between sodium carbonate and hydrochloric acid (1mk)

d)How many moles of :

i)Hydrochloric acid reacted . (1mk)

ii)Sodium carbonate reacted . (1mk)

e)Calculate the molarity of sodium carbonate solution. (3mks)

3.a)Carbon (iv)oxide can be prepared from reaction between hydrochloric acid and marble chips (calcium carbonate).

i)Write an equation for the reaction that takes place when marble chips react with the hydrochloric acid .(1mk)

b) 5grams of calcium carbonate reacted with 2M hydrochloric acid.

i)How many moles of calcium carbonate reacted. (2mks)

ii)How many moles of hydrochloric acid reacted . (2mks)

c)What volume of carbon(iv)oxide was produced at RTP .(Molar gas volume at RTP is 24litres).(2mks)

4. i)Define salt . (1mk)

 ii)Outline two types of salts (2mks)

5.The grid below is a section of the periodic table.The letters the actual symbol of the elements .Use it to answer the questions that follow.

|  |  |  |  |
| --- | --- | --- | --- |
|  |  |  |  |
|  |  |  |  | D |  |  | F |  |
|  |  | C |  | E |  |  | G |
| A | B |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |

a)Compare the melting points of A and C?Explain (2mks)

b)Which element has the lowest ionization energy . (1mk)

c)In terms of structure and bonding .State the structure in ;

i) D (1mk)

ii)Chloride of C (1mk)

d)Choose the letter that represents an element that:

i)Is the most electronegative . (1mk)

ii)Exist as a monoatomic gas . (1mk)

e)Write the formula of the compound formed when E reacts with magnesium . (1mk)

f)(i)Write a balanced equation for reaction between element A and water . (1mk)

ii)What is the nature of the solution formed? (1mk)

g)Which element in the periodic table has four energy levels and forms chloride MCl 2 (1mk)

h)How do the atomic sizes of elements Cand E compare ?Explain (2mks)

(i)Using dot(.) and cross (x) for electrons,show the bonding in the compound formed between elements b and F . (2mks)

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