**KAHUHO UHURU HIGH SCHOOL FORM 3CHEMISTRY**

**END OF TERM EXAM** **TERM 2 2013**

**TIME: 1HR 30MIN**

**NAME…………………………………………………………ADMN NO……………CLASS…………..ROLL NO……….**

Answer all the questions

Q1. State the Graham’s law of diffusion (2mks)

Q2. A gas occupies 20dm3 at 0oC and 10 atmospheres. What volume would it occupy at 27oC and 1 atmosphere (2mks?)

Q3. Two gases X and Y have a relative density of 1.98 and 2.90 respectively. They diffuse under the same conditions. If the relative molecular mass of Y is 64

1. Determine the relative molecular mass of X (3mks)
2. Under the same conditions CO2, propane and nitrogen (IV) oxide diffuse at the same rate. Explain (1mk)

Q4. X g of anhydrous sodium carbonate was dissolved in water to make a 250cm3solution. 25cm3 of the solution neutralized 20cm3 of 0.25M nitric acid. Determine the value of X (4mks)

Q5. An isotope Q has mass number of 34 and 18 neutrons

1. Draw the atomic structure of Q (2mks)
2. Write down the electronic configuration of the ion of Q (1mk)

Q6 (a) When Magnesium is heated in a stream of Nitrogen, a white solid is formed. Write the equation for the reaction (1mk)

(b) When the white solid in (a) is reacted with water, a colourless gas which turns a moist red litmus paper blue is produced. Identify the colourless gas (1mk)

Q7. The data below gives the electronic configuration of some selected atoms /ion

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Atom/Ion | A2+ | B | C2- | D2+ | E | F- | G+ | H |
| Electronic configuration | 2 | 2.4 | 2.8 | 2.8.8 | 2.8 | 2.8.8 | 0 | 2.8.2 |

1. Select an atom that is a noble gas (1mks)
2. What is the atomic number of C and A (1mk)
3. Select an element that belong to group 2 and period 4 (1mk)
4. Write the formula of the compound formed when D and F react (1mk)

Q8. A substance contains 25.6% Cu, 12.8% S, and 25.6% O2, and 36% H2O of crystallization. Calculate its simplest formula (Cu= 64, S= 32, H= 1, O= 16) (4mks)

Q9. How many moles of gas are present in 4.8dm3 of gas (at r.t.p) and what is its mass? 2mks.Q10. 8.4g of sodium hydrogen carbonate are completely decomposed by heating. Calculate the mass of the resulting solid and the volume in liters of the gas produced (at s.t.p) (4mks)

Q10. Explain the following observations

1. Graphite is a good conductor of electricity and yet it is a non-metal (2mk)
2. Aluminium is a better thermal and electrical conductor than magnesium and sodium (2mks)
3. Sodium chloride is a poor conductor of electricity while in solid state but it is a good conductor in molten and in solution state (2mks)

Q11. Draw the structural formula of the following organic compounds (2mks)

1. Ethane
2. Hexane

Q12 (a) What is the name given to compounds with the same molecular formulae but different structural formulae? (1mk)

(b) Give the molecular formula of hexane and draw its structural formulae (3mks)

(c) Write the chemical equation representing

 (i) Reaction of methane with chlorine in presence of light (4mks)

1. What is meant by the term saturated hydrocarbon (1mk)
2. Write the equation representing laboratory preparation of methane (1mk)

Q13. Explain why melting and boiling points of alkanes increases down the group (2mks)

Q14. State any 2 uses of alkanes (2mks)