**GATITU MIXED SECONDARY SCHOOL**

 **END OF TERM 1 EXAM NAME…………………**

 **FORM 4 2013 ADM. NO……………….**

 **CHEMISTRY DATE………**……….

1. An organic compound has an empirical formula CH2O and its molecular formula mass is 180. Find its molecular formula (3mks)
2. 60cm3 of oxygen gas diffused through a porous material in 50cm3. How long would 60cm3 of sulphur (v) oxide gas to diffuse through the same conditions (3mks)
3. In an experiment a piece of magnesium ribbon was cleaned with steel wool. 2.4g of the clean magnesium ribbon was placed in a crucible and completely burnt in oxygen. After cooling the product weighed 4.0g
4. Explain why it is necessary to clean the magnesium ribbon (1mk)
5. What observations are made in the crucible after burning of magnesium ribbon (1mk)
6. Why was there an increase in mass (1mk)
7. Write the chemical equation which took place in the crucible (2mks)
8. The product in the crucible was shaken with water and filtered. State and explain the observation made hen red and blue litmus paper were dropped into the filtrate (3mks)
9. Name the catalysts used in (2mks)
10. Haber process
11. Contact process

White precipitate A

5. NH3 IN EXCESS (aq)

solution A

 H2SO4(aq)

White precipitate

White precipitate B

 NH3 IN EXCESS (aq)

No white precipitate

Solution B

 H2SO4 (aq)

 a)Identify the cations present in (2mks)

 i) Solution A

 ii) Solution B

b) State and explain observation made when a sample of dry white precipitate B is heated in a test tube (2mks)

6. Air

Hydrogen

Nitrogen

 iii Liquid

 i ii

Absorption

Tower

Ammonia

Catalyst P

(700c)

 Air N

 Nitric

 acid

1. Give one source of the following raw materials a)Nitrogen gas b)Hydrogen gas
2. State three conditions for the process i
3. Name catalyst P Gas M (2mks)
4. Write chemical equations for a) Formation of gas M b) Reaction in the absorption n tower
5. State two reasons why step iv is necessary
6. Give three uses of nitric acid (3mks)

7. The grid below represents part of the periodic table. The letters do not represent the actual symbols of the elements .Use it to answer the questions that follows

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  |  |  |  |
| F |  | P |  |  | G | H | I |
|  | Q | J | K |  | L | M |  |
| N |  | X-Z |  |  |  |  |  |  |

a) What type of bond would be formed in a compound between H and F. Explain (2mks)

b) i) which of the elements J and M will have a greater atomic radius? Explain (2mks)

 ii) Elements F and N are in the same group of the periodic table flow do their atomic radius .Compare. Explain (2mks)

c) An element W has atomic number 15 ,indicate the position it would occupy in the table above (1mk)

d) What is the name of the element x-z (1mk)

e) Why is J used in electric cables while Q is not (1mk)

f) P and J are termed as metalloids. What does the term metalloid mean? (1mk)

g) How would you expect the reactivity of h and M to compare . Explain (2mks)

8. During the extraction o f lead from its ores ,one of the main ore used is Galena

hot Coke and Cao Gas P

Smelting

Furnace

Roasting

furnace

air

 SO2 (g) lead

 slag

1. Write an equation for the reaction in the roasting furnace(2mks)
2. Name gas P
3. State one use of the lead metal(1mk)

9. Below is al list of oxide

 MGO, N2O K2O CAO and AL2O3

 Select

1. A neutral oxide (1mk)
2. A highly water soluble basic oxide (1mk)
3. An oxide that can react with both sodium hydroxide and hydrochloric acid (1mk)
4. What do we cal the characteristic of the oxide named above (1mk)

10. Element A as n atomic number of 6 and B has an atomic number of 9

 i) Write the electron arrangements A and B

 ii) Using dot(.) and cross (x) diagram show how A and B Combine to form a Compound (2mks)

11. The set up below shows chlorine water exposed to sunlight

 I) State and explain the observation made after some time. Use a chemical equation (3mks)

12. i) What is allotropy (1mk)

 ii) State two elements that exhibit allotropy (2mks)

13. Show the structure of the following compounds

 a) Bromo ethane

 b) 2 bromo 4 chloro 3,3 dimethly pent –i-ene

 c) but-1,2 –diene

14. 15cm3 of ethanoic acid (CH3COOH ) was dissolved in water to make 500cm3 solution .Calculate the conc3ntration in moles per litre (3mk s)

15. A fixed mass of gas has a volume of 250cm3 at a temperature of 270c and 750 mmHg . Calculate the volume of the gas that would occupy at 42c and 750mmhg pressure (3mks)

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 The diagram above represents a set up used to react iron and steam

1. Why is it necessary to heat the pass wool soaked in the water, first before heating the iron filings (2mks)
2. Write an equation that takes place in combustion tube (2mks)

17.

 STEP II STEP III

Calcium Oxide

Substance E

Colourless solution

 Dil. HCL

 Study the flow chart above and answer the following questions

 i) Name the process that take place in step ii

 ii) State one commercial use of substance E

 iii) Explain why a colourless solution would not be formed in step ii, if dilute sulphuric acid was used instead of dilute HCL(1mk)

 ALL THE BEST – MR. NYAGAH