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**CHEMISTRY**

**FORM 2**

**END OF TERM 2**

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

**SCHOOL……………………………………. DATE…………………….**

**Instructions:**

***Answer all the questions in the spaces provided. Show working clearly where possible***

1. a) Using dots (.) and crosses (x) to represent electrons, show the structure of carbon (ii) oxide (2mks)

b) Name the type of bonds found in the compound (2mks)

1. Natural argon contains 0.34% of argon 36, 0.06% of argon 38 and 99.6% of argon 40. Calculate the relative atomic mass of argon. (3mks)
2. Give two reasons why luminous flame is not used for heating purposes in the laboratory (2mks)
3. Explain why the pH value of hydrochloric acid is lower than that of ethanoic acid (2mks)
4. Arrange the following elements in order of their reactivity (in descending order). Potassium (K), Calcium (Ca), Alluminium (Al) and copper (Cu) (2mks)
5. Differentiate between the following types of mixtures (2mks)
	1. Heterogenous
	2. Homogenous
6. Explain the following terms (5mks)
	1. Solvent
	2. Solute
	3. Melting point
	4. Boiling
	5. Sublimation
7. An element P has an electron arrangement of 2.6
	1. State the period and group which the element belongs (2mk)
		1. Period
		2. Group
	2. Write the formula of the most stable ion formed when element P ionizes (1mk)
	3. Explain the difference between the atomic radius and ionic radius of the element P (1mk)
8. Name the elements present in lead (ii) sulphate and their chemical symbols
9. Study the set-up below and answer the questions that follow:



* 1. Name gas (1mk)
	2. Give the test for the gas (1mk)
	3. Give the name for the resulting solution (1mk)
	4. Write an equation for the reaction that takes place in the set-up (2mks)
1. Complete and balance the equations below
	1. ZnO(s) + HCl(aq)
	2. Mg(s) + O2(g)
	3. CuCO3(s) heat
	4. CaCO3(s) +HCl(aq)
2. Study the information in the table below and answer the questions that follow. (The letters do not represent the actual symbols of the element)

|  |  |  |
| --- | --- | --- |
| Element | Electronic configuration | Ionization energy |
| P | 2.1 | 519 |
| Q | 2.8.1 | 494 |
| R | 2.8.8.1 | 418 |

* 1. What is meant by ionization energy? (2mk)
	2. What is the general name given to the group in which element P, Q and R belong? (1mk)
	3. Explain why element R has the least ionization energy (2mk)
1. An element has 16 protons and 16 neutrons. What is:-
	1. The mass number of the element X? (1mk)
	2. The charge on the most stable ion of element? (2mks)
2. Write the chemical formula of the following compounds
	1. Alluminium hydroxide (2mks)
	2. Iron (ii) nitrate (2mks)
	3. Ammonium sulphate (2mks)
	4. Barium chloride (2mks)
3. Explain the following observations:
	1. Chlorine is more reactive that bromine (2mks)
	2. Potassium is more reactive than lithium (2mks)
4. a) Name two reagents used during the laboratory preparation of oxygen (2mks)

b) Write and equation for this reaction (2mk)

1. the apparatus in the figure below could be used to show the products of combustion of a candle:

 Calcium hydroxide

 Calcium hydroxide

 Calcium hydroxide

Ice cold water

To sanction pump

Limewater

Inverted

funnel

Candle

* 1. What is the function of the sanction pump? (1mk)
	2. Why is tube M surrounded by cold water in a beaker? (1mk)
	3. Explain the changes you expect in the lime water (1mk)
	4. Write a chemical equation of the reaction in the test tube containing limewater (3mks)
1. Given the formula of aluminum sulphate as Al2(SO4)3 and that of lead (ii) nitrate as Pb(NO3)2. What would be the formula of aluminum nitrate? (3mks)
2. In the set up below, nitrogen gas is prepared. Study it well and answer the questions that follow

water

Conc. Sodium hydroxide

Copper turnings

Heat

N2

Air

 T

* 1. What is the purpose of NaOH? (1mk)
	2. Write an equation of the reaction taking place in the round bottomed flask. (3mks)
	3. With the aid of an equation, explain what takes place in the combustion tube (2mks)
	4. The nitrogen obtained using this method is not pure. Explain (3mks)
1. a) What is meant by an indicator? (2mks)
2. Name any two indicators and give their colours in an acid solution. (2mks)

|  |  |
| --- | --- |
| Indicator | Colour in acid |
|  |  |
|  |  |

1. Name the method by which the following mixtures could be separated (4mks)
	1. Kerosene from crude oil
	2. Coloured extract from grass dissolved in propanone
	3. Pure iodine from a mixture of sand and iodine
	4. Solute from solvent
2. Give an example of each of the following oxides: (4mks)
	1. Basic oxide
	2. Neutral oxide
	3. Acidic oxide
	4. Amphoteric oxide
3. Substances exist as pure elements and compounds. Give two examples for each and write their chemical symbols (formula for compounds)

|  |  |  |
| --- | --- | --- |
| Elements | Name | Symbol |
| i |  |
| ii |  |
| Compound | Name | Formula |
| i |  |
| ii |  |