NAME ……………………………………………………………………………………………

INDEX NO……………………………………….CLASS………………………. DATE……………………..

GATITU DAY MIXED SECONDARY SCHOOL

CHEMISTRY PP 2

THEORY TRIAL 2

 TIME : 2HRS

**Instruction**

Mathematical tables and calculator s may be used.

 All working must be clearly shown where necessary.

1. The grid below represents part of the periodic table. Study it and answer the questions that follow. The letters do not represent actual symbols of the element.

|  |  |
| --- | --- |
|  |  |
|  | I |  |  | L | U |
| R | J |  | G | Q |  |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
|  |

|  |  |
| --- | --- |
|  |  |
| W |  |
| X | f |
| Y |  |
| z |  |
|  |

(a) Which is the most reactive metal? (1mk)

(b) What is the family name of the element L ,Q? (1mk)

(c) Element Q reacts with both W and R. Write the formulae of the compounds formed between :

 i) W and Q (1mk)

 ii) R and Q (1mk)

(d) Which of the two compounds formed in (c) above would have a higher melting points?

 Explain (2mks)

(e) Compare the atomic radius of element X and Y (2mks)

(f) U is unreactive. Explain (1mk)

(g) Giving a reason. Predict what the PH of aqueous solution of the oxide of element G would be? (1mk)

(h) State the compounds that form:

 i) Diatomic molecules (1mk)

 ii) Monoatomic gases (1mk)

2. The diagram below represents a charcoal burner. Study it and answer the questions that follow,

(a) Write the equation for the reaction taking place at A , B and C. (3mks)

 A

 B

 C

(b) What safety precautions should be taken when using the charcoal burner? (1mk)

(c) Give two physical properties of carbon (II) oxide which makes it very dangerous (2mks)

(d) Name two uses of carbon (II) oxide gas which are also uses of Hydrogen gas. (2mks)

(e) Write a chemical equation of the reaction between carbon (IV) oxide and lime water (2mks)

(f)Explain why sodium hydroxide is not used to detect presence of CO2 as calcium hydroxide. (2mks)

3. Study the diagram below on reaction between **Iron** and **dry** **chlorine** **gas** and answer the questions that follow.

(a) Name two reagents that could have been used to generate chlorine gas from the generator. (2mks)

(b) State the identity and role of substance F. (2mks)

(c) Write a balanced equation that takes place between **Chlorine** **gas** and **iron** wire to form F. (1mk)

(d) Substance G has two roles in the experiment. Identify it and state the two roles. (3mks)

(e) What property of H enables it to be collected in the shown manner? (1mk)

(f) What precaution must be observed in order to collect substance H. (1mk)

(g) Name and explain one application of chlorine in public health. (2mks)

4. The set up below was used by some students and Kiamataini academy to prepare gas V.

(a) Name gas V. (1mk)

(b) (i) If the gas was required dry, name a possible dessicator to be used for this purpose. (1mk)

 (ii) Sketch the drawing of the apparatus to be used in the answer b (i) above. (3mks)

(c) What was the role of the following?

 Broken porcelain (1mk)

 Sodium hydroxide solution (1mk)

(d) Write a balanced equation between conc. Sulphuric acid and ethanol. (1mk)

(e) Name the property of conc. Sulphuric acid shown in question (d) above. (1mk)

(F) How is gas V formed in large scale production? (1mk)

5. The flow chart below represents the industrial manufacture of sulphuric acid. Study it to answer the question that follow.

(i) What impurities are removed in stage II? (2mks)

(ii) Name one catalyst used in stage IV (1mk)

(iii) Explain why sulphur (IV) oxide gas is absorbed in concentrated sulphuric acid before dilution. (1mk)

(iv) Give an equation for the reaction in stage 1. (1mk)

(v) Name chamber in stage III and explain what takes place. (3mks)

(vi ) State the main hazards of the above plant to the environment. (2mks)

(vii) State two properties of Conc. Sulphuric acid. (2mks)

6. Study the flow chart below to answer the questions that follow.

(i) Write an equation for the reaction between propan –I –ol and potassium metal. (1mk)

(ii) Name process I and II (2mks)

 I

 II

(iii) Identify the products A and B (2mks)

 A

 B

(iv) Name one catalyst used in process II (1mk)

(v) Draw the structural formula of the repeating unit in the polymer C (1mk)

(d) State two uses of methane (2mks)

 (e) (a) Name a natural way of formation of ethanol. (1mk)

 (b) Write the equation of the process named above. (1mk)

7. Study the chart below that shows the separation of two compounds and use it to answer the question that follows.

(a) Identify the cations present in K and M. (2MKS)

(b) Name any one possible anion present in the mixture. (1mk)

(c) 2:9 g of T (oH)2 were dissolved in distilled water and the solution made up to 200 cm3. 25 cm3 of this solution required 12.5cm3 of o. 5m oxalic acid which is a dibasic acid for complete neutralization (oxalic acid is dibasic). Determine the molar mass of T (0 =16, H = 1). (4mks)

(d) 8.0 g of a mixture of potassium chloride and sodium nitrate were dissolved in water and the resultant solution treated with excess silver nitrate solution. 11.40 g of pure silver chloride was precipitated. Determine the percentage by mass of sodium nitrate in the mixture. (3mks)

(e) Differentiate between the bleaching action of chlorine and sulphure (iv) gas. (2mks)