**PRESIDENT’S 0FFICE**

**REGIONAL ADMINISTRATION AND LOCAL GOVERNMENT**

**LINDI MUNICIPAL COUNCIL**

**FORM FOUR: MOCK EXAMINATION – 2019**

**CHEMISTRY-2A**

**CODE: DATE: 2019**

TIME: 2:30 HOURS

**INSTRUCTIONS.**

1. This paper consists of three (3) questions

2. Answer all question in this paper

3. Cellular phones and calculators are not allowed in the examination room

4. Write your examination number on every page of your answer sheet.

5. The following constant may be used;

Atomic masses H=1, C=12, O=16, N=14, Na=23, Mg=24, Al=26, S=32, Cl=35.5,

 Ca=40, Fe=56, Co=64, Ag=108.

**QUESTION 1.**

You are provide with the following solutions

A: Containing 6.3g of hydrated oxalic Acid (COOH)2 Xh2O in 1dm3 of the solution

B: Containing 1.4g of potassium hydroxide in 0.5 dm3 of the solution phenolphthalein

 Indicator.

 **Question;**

 (a) Titrate the acid (in burette) against the base (in a conical flask) using to drops of

 the indicator and obtain three titer values.

 (b) (i)………………… cm3 of B required ……………….. cm3of A for complete

 reaction.

 (ii) The colour change at the end point was from …………… and ……………

 (iii) Is the use of methyl orange indicator in this experiment a suitable as the use of

 phenolphthalein? Give a reason for your answer.

 (c) Showing your procedure clearly determine the value of X in the formula

 (COOH)2(aq) + 2KOH (COOK)2(aq) + 2H20(C)

**QUESTION 2.**

You are provided with the following;

Solution Z containing 1M sodium thiosulphate (Na2S203)

Solution T containing 0.1M nitric acid (HNO3 )

Distilled water

Piece of paper marked X stop – watch

**PROCEDURE;**

1. Using measuring cylinder measure 5cm3of solution Z and put 100cm3beater.
2. Measure 5cm3of solution T and put into 100cm3 beaker containing solution Z and immediately start the stop – watch
3. Swirl the contents in the mixture from the above observe changes
4. Switch off the stop – watch when the mark x disappears
5. Record the time taken for letter x to disappear
6. Repeat procedure (i) to (v) using the data showing in table 1.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Experiment  | Vol. of T (cm3) | Vol. of Z (cm3) | Vol. of distilled water (cm3) | Time (s). |
| 1 | 5 | 5 | 0 |  |
| 2 | 5 | 4 | 1 |  |
| 3 | 5 | 3 | 2 |  |
| 4 | 5 | 2 | 3 |  |

**Question**

(a) complete table 1

(b) Write a balance equation for reaction between T and Z

(c) what substance was produced during the reaction which obscured letter X?

(d) Plot the of volume of Na2S2O3 solution against time (s)

(e) What conduction can you draw from this experiment?

**QUESTION 3.**

Sample M is a simple salt containing one action and one union carry out the experiments described below, record carefully your observation inferences and finally identify the anion and action present in sample M.

|  |  |  |  |
| --- | --- | --- | --- |
| **S/N** | **EXPERIMENT** | **ABSERVATION** | **INFERENCE** |
| (a) | Observe the appearance of sample M |  |  |
| (b) | Dissolve a little sample M in distilled water in a test tube stir and then boil.  |  |  |
| (c) | Put a spatulaful of sample M in attest tube and then add concentrated sulphuric acid and warm |  |  |
| (d) | Put a spatulaful of sample M in a test tube and then add dilute nitric acid divide the resulting solution into three portion and add the following:i. NaOH solution till in excess to the first portion |  |  |
|  | ii. KI solution till in excess to the second portion.  |  |  |
|  | AgNO3solution followed by dilute HN03 and then NH3solution to the third portion  |  |  |

 Conclusion:

1. The cation in sample M is ……………………………………….
2. The anion in sample M is ………………………………………..
3. The formula of the compound M is ………………………………
4. The name of compound M is ……………………………………..