**Do not write your name on IA.**

**Chemistry IA: Topic**

**1.0: Introduction and Background Information**

**You should write details of all the necessary aspects related to your IA in different subheads.**

**1.1: Rationale and Aim**

Aim:

**1.2: Titration**

**1.3: Choice of your materials or quantities**

**2.0: Research Question:**

**3.0: Hypothesis**

**4.0: Variables ( you need to give justification of variables)**

**4.1: Independent Variable**

**4.2: Dependent Variable**

**4.3: Controlled Variables**

|  |  |  |
| --- | --- | --- |
| **TABLE 1: CONTROLLED VARIABLES** | | |
| **Variable** | **Why is it important to control?** | **How will you control it?** |
|  |  |  |

**5.0: Measurement Apparatus and Materials**

**5.1: Measurement Apparatus you should write the number of apparatus needed along with the uncertainty.**

1. Burette - 1 (0.05 cm3)

**5.2: Materials**

1. Burette stand - 1

**6.0: Methodology[[1]](#footnote-1)** (“Write a statement about the experiment method ”)

**6.1: Preparation of Solutions( detailed step wise step)**

1. Place a ….

**6.2: Main Method of experiment for example Titration**

1. Measure and add 50 cm3 of
2. Repeat steps x to y four more times for a total of five trials.
3. Repeat steps x to y with varried …..

**7.0: Safety, Ethical, and Environmental Considerations**

**7.1: Safety**

**Handling of apparatus,**

**Chemiicals**

**7.2: Ethical and Environmental Considerations**

**8.0: Investigation and Results**

**8.1: Qualitative Observations**

You can give your experimental setup picture here.

**8.2: Raw Data**

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **TABLE 2: RAW DATA** | | | | | | | | | | |
| Temperature | Volume of 0.05 mol dm-3 CaCl2 needed to reach endpoint ( | | | | | | | | | |
| Trial 1 | | Trial 2 | | Trial 3 | | Trial 4 | | Trial 5 | |
| INITIAL | FINAL | INITIAL | FINAL | INITIAL | FINAL | INITIAL | FINAL | INITIAL | FINAL |
|  |  |  |  |  |  |  |  |  |  |  |

**8.3: Processed Data**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **TABLE 3: PROCESSED DATA** | | | | | | | |
| Temperature | Change in volume of 0.05 mol dm-3 CaCl2 | | | | | Average Change in Volume | Concentration of Ca2+ in Solution |
| Trial 1 | Trial 2 | Trial 3 | Trial 4 | Trial 5 |
|  |  |  |  |  |  |  |  |

**8.4: Sample Calculation With Uncertainties**

**8.5: Graphing the Results**

**Title of the graph must be present.**

**8.6: Interpreting the Graph**

**9.0: Conclusion**

**10.0: Evaluation**

**10.1: Strengths of the Investigation**

**10.2: Limitations and Improvements**

|  |  |  |
| --- | --- | --- |
| **TABLE 4: LIMITATIONS AND IMPROVEMENTS** | | |
| Limitation | Justification and Effect | Improvement |
| Systematic error: |  |  |
|  |  |  |
| Random error: |  |  |
|  |  |  |

**10.3: Extensions**

**11.0: Works Cited**

1. Is the procedure of your own or it is adopted from somewhere? Write about it. [↑](#footnote-ref-1)