Activity On Enthalpy of Neutralization

In this experiment, you will determine the enthalpy of neutralization of Hydrochloric acid by sodium hydroxide using thermometric titration
You are provided with the following;
BA1 which is sodium hydroxide solution
BA2 which is Hydrochloric acid solution
In groups of five, you are required to determine enthalpy of Neutralization of acid and base.
Title/Aim: *An experiment to determine the enthalpy of Neutralization between a base BA1 and an acid BA2*
Hypothesis:

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Variables:
Independent variable: *Volumes of solutions of BA1 and*
Dependent Variable: *Temperature of solutions*
Control Variable: *Volume of BA2*
Materials/Requirements:

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Precautions/Risks and ways of mitigating the riske

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Procedure:

I. Transfered 5.0cm^3 of **BA1** into a plastic beaker using a measuring cylinder. Noted its temperature T_1 and also measured and recorded temp T_2 of **BA2**
II. Filled the burette with **BA2.**
III. 5.0cm^3 of **BA2 from the burette** was run into **BA1** in the plastic beaker.
IV. Gently stired with the thermometer and recorded the highest temperature of the solution mixture in the plastic beaker.
V. The Plastic beaker was washed and experiments III to IV repeated for volumes of BA1; 10, 15, 20, 25, 30 and 35cm^3.
VI. Maximum temperature was observed every time and recorded in the table of results below

Results:
Initial temperature of acid, T_1 = ……
Initial temperature of Base, T_2 = ……

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Table of results:

Experiment number	1	2	3	4	5	6	7
Volume of **BA_2** (cm^3)	0	10	15	20	25	30	35
Volume of **BA1** (cm^3)	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Temperature **T** (in ^{0} C)							

a) Explain why a plastic beaker was used instead of a glass beaker during the experiment?

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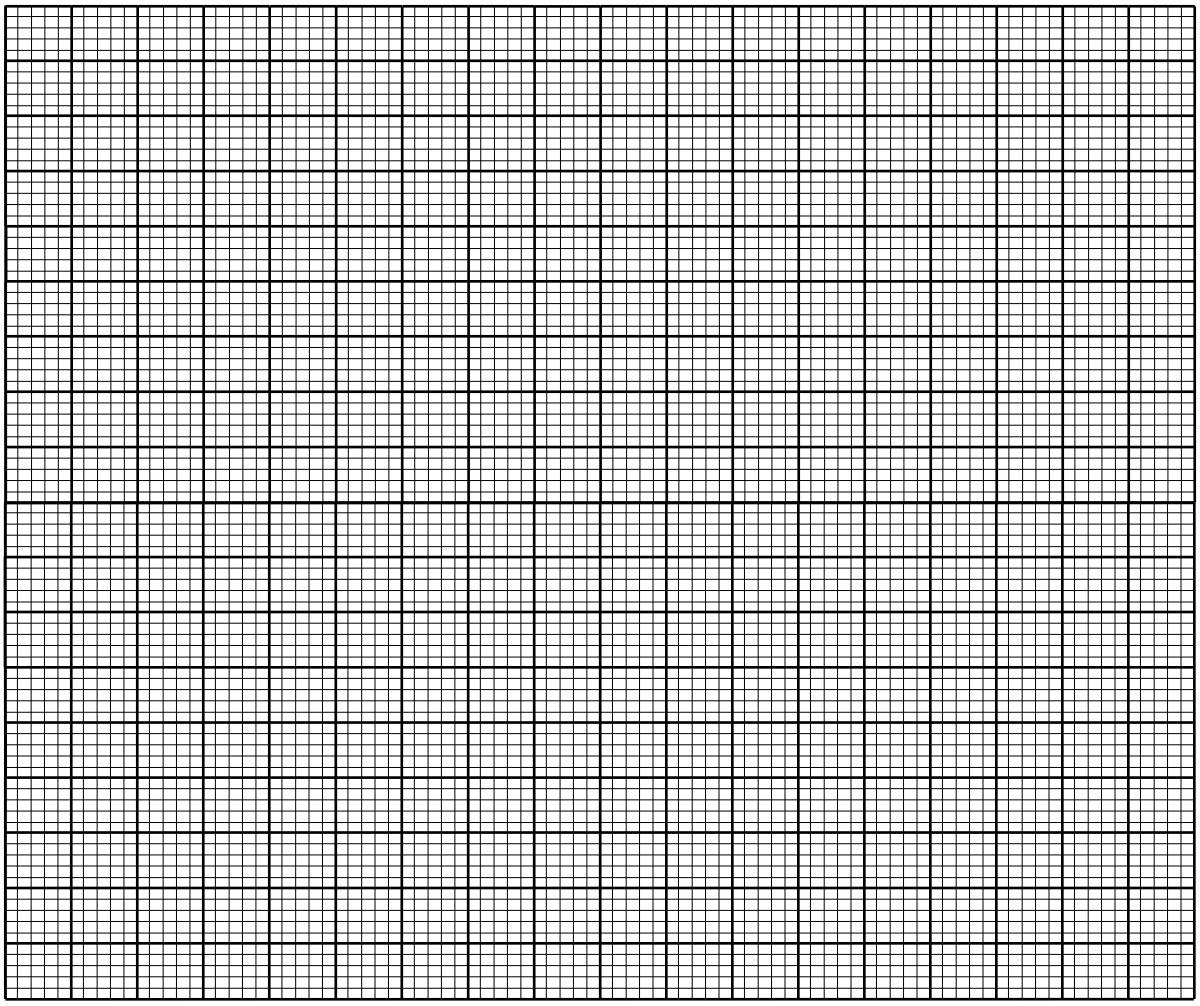
b) Plot a graph of temperature (**T**) against Volume of **BA2**



c)(i) From the graph determine the volume of BA2 required to neutralize 50cm^3 of **BA1** = ……

(ii) Determine the maximum Temperature change

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END

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