



Established in 1879

Raffles Girls' School

(SECONDARY)

Name: _____

Class: 4 /

Register No: _____

CHEMISTRY

RAFFLES PROGRAMME/RAFFLES ACADEMY (STANDARD)

YEAR FOUR

Pen and Paper Assessment 2

Thursday

11 August 2016

1 Hour

INSTRUCTIONS TO CANDIDATES

Write your name and register number in the spaces provided.

Answer **all** the questions in the space provided.

Use a **black or blue pen** to write your answers, except for diagrams.

Do **not** use correction tape or fluid.

INFORMATION FOR CANDIDATES

The number of marks is given in brackets [] at the end of each question or part question.

The total number of marks for this paper is **30**.

For examiners' use

Section A	6
Section B	14
Section C	10
TOTAL	30

Parent's / guardian's Name: _____

Signature: _____ Date: _____

Task description

You are to plan an experiment to investigate the effect of temperature on the rate of chemical reaction between calcium carbonate and sulfuric acid, using **only** the apparatus and chemicals provided below. However, you may choose not to use **all** the apparatus and chemicals provided. Your experiment should allow you to collect sufficient data to plot graph(s) to illustrate the effect of temperature on the rate of reaction.

Apparatus

Retort stand
Rubber stopper with delivery tube and rubber tubing
Bunsen burner
Tripod and wire gauze
Thermometer
Glass rod
Stopwatch
50 cm³ gas syringe
Water troughs (as water bath)
Beakers (250 cm³)
Measuring cylinders (50 cm³)
Conical flasks (250 cm³)

Chemicals

Powdered calcium carbonate (in sachets of 1 gram each) x 30 sachets
Distilled water
Hot water
Ice water
0.100 mol/dm³ sulfuric acid

Your report should include the following:

Section A. Preliminary Plan

- (i) Aim of experiment. [1]
- (ii) Identification of the independent, dependent and controlled variables. [5]

Section B. Experimental design

- (i) List of apparatus and chemicals. [2]
- (ii) A labelled diagram of your experimental set-up. [3]
- (iii) A detailed description of each step of your experiment including specific apparatus and exact quantities of chemicals you plan to use. [9]

Section C. Discussion

- (i) Data table(s) for the results of your experiment. [4]
- (ii) A description of:
 - how you would process the data and provide a sketch of the graph(s). [4]
 - how your graph(s) should be interpreted to address the aim of your experiment. [4]
- (iii) Two sources of error in your experimental plan. [2]

----- End of Paper -----

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