Class:
G O S F R D

Student Name: Brenden Yoo

Part A /16	
Part B / 27	
TOTAL	/43

ANSWER SHEET for MULTIPLE CHOICE -Clearly mark 1 answer for each question.

QUESTION	A	B	C	D
1			O	
2				O
3		O		
4				O
5		O		
6			O	
7	O			
8				O
9			O	
10		O		
11	O			
12	O			
13			O	
14		O		
15		O		
16				O

Part II

27 marks
Attempt Questions 16-19.
Allow about 35 minutes for this section

Question 16 (15 marks) **Marks**

The paragraph below is a student's write-up of an experiment.

1. I put 100 mL of water in a test tube and measured its temperature. It was 18ºC. Then I put some of the crystals in it and stirred the mixture to dissolve the crystals. I kept stirring until some remained on the bottom of the tube no matter how much longer I stirred.
2. I filtered the mixture and then evaporated all the water from the solution. I weighed the amount of solid left behind and found that 6.0 g had been dissolved.
3.Then I did it again but this time I heated the water using a Bunsen burner, gauze mat and tripod while the thermometer was suspended form a retort stand using water at 29ºC. I found that 8.0 g dissolved.
4. I repeated it at 40ºC and at 47ºC and got 10.0 g and 11.2 g as my results

(a) Write an aim appropriate for the experiment. **1**

To see how much excess crystal was left after evaporating and filtering the solution of water & crystal.

(b) Complete the table for the student's results. **2**

Temperature	Mass of dissolved crystal (grams)
18°C	6
18°C	6
29°C	8
40°C	10
47°C	11.2

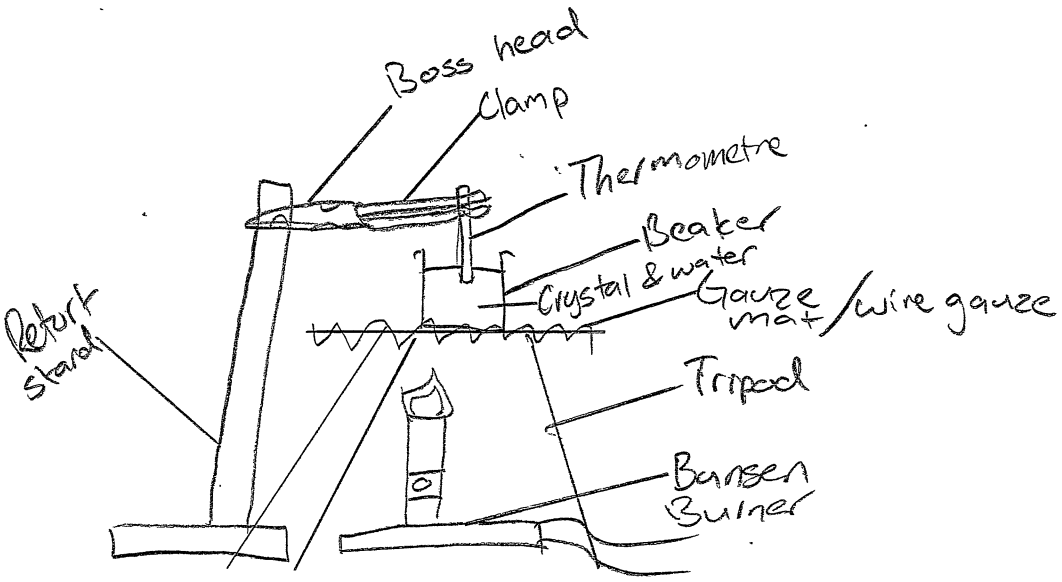
(c) Identify the independent and dependent variable for this experiment. **2**

The independent variable is the amount of solid left behind after the experiment has been concluded. The dependent variable is the amount of water in the solution.

(d) Identify a variable that needs to be controlled during the experiment to make it a fair or valid test. **1**

The controlled variable is the size of the jar and the air around the area where the experiment is conducted as well as factors such as wind or light.

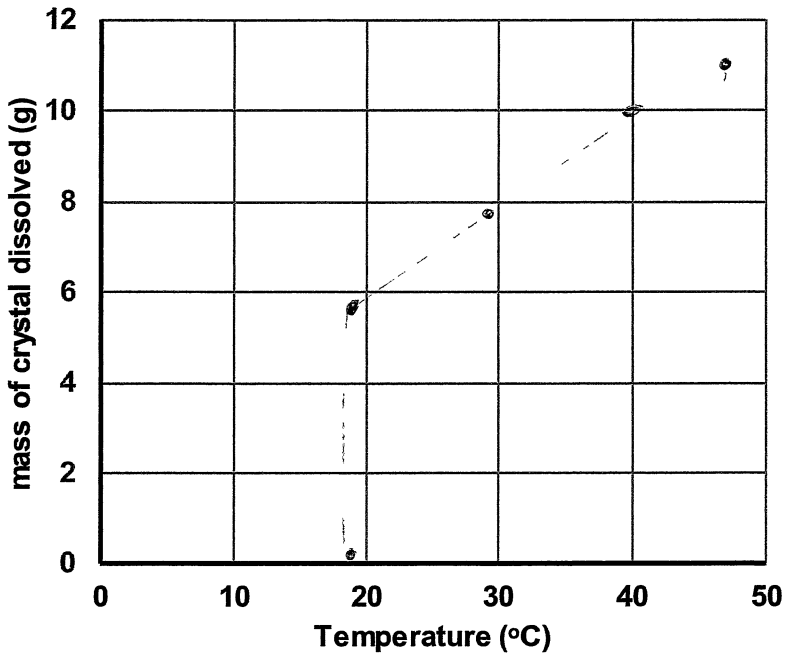
(e) Draw a labelled scientific diagram showing the equipment set up required to carry out step 3 as described above. **3**



(f) Identify two safety issues the student will have to be concerned with through this experiment. **2**

Safety issues that have to be careful with is the heat of the bunsen burner as well as heat from the glass beaker and gauze mat after the experiment has concluded.

(g) Graph the students results on the axes provided. 3



(h) Write a conclusion for the experiment. 1

After the crystal - water solution was heated, evaporated and heated, many grams of the mass has been dissolved.

Question 17 (4 marks)

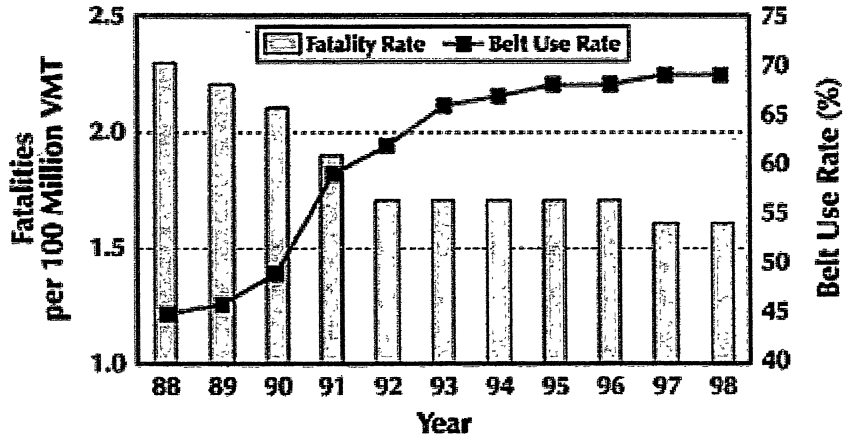
The following scientists are working in different branches or disciplines of science. Identify which branch each is working in:

4

Activity	Branch of Science
Paris is studying the crystals embedded in a rock.	Geology
Beau is developing a new type of plastic	
Shaun is investigating the eating habits of insects	Biology
Angus is monitoring the movement of an asteroid	Astrology

Question 18. (4 marks).

The graph shows information about road fatalities and the use of seat belts in cars.



(a) According to this data what is the trend shown in the number of fatalities between 1988 and 1996? Provide data to support your answer. **2**

The belt usage has gotten higher, because of the upward motion of the line and the number of deaths has been reduced. This can be deduced because the graph is getting smaller.

(b) Analyse the data presented and provide reasons for the conclusion you made. **2**

The fatality rate has been significantly reduced after the usage of belts because in the graph, the collum for fatality decrease while the line for belt usage increases.

Question 19. (4 marks).

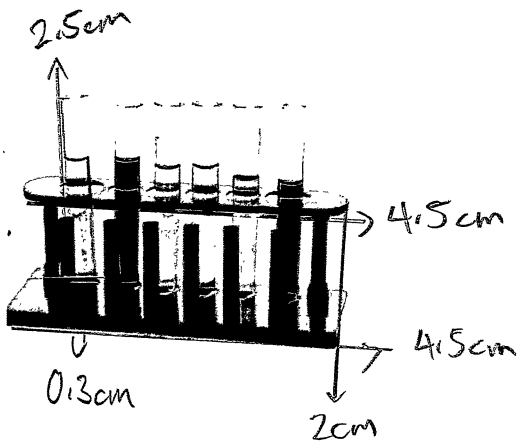
The drawing made by a scientist was twice as big as the real size of the object.

Determine the actual length of the whole piece of equipment. *Show your working.*

2

The test tube rack is 2.25cm long and the height is 1cm.

The test tubes are 1.25cm tall and are 0.15cm wide.



(NOT EXACT)

b) There are some problems with the equipment diagram above. Identify two things that the scientist needs to change to accurate represent the equipment above. 2

The equipment needs to be 2D and the diagram has to be flat, rather than veiwed from an angle.

END OF EXAM