Class:
G O (S) F R D

Student Name: Quinn O'Farrell

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		✓		
2				✓
3		✓		
4				✓
5		✓		
6			✓	
7		✓		
8				✓
9			✓	
10				✓
11	✓			
12	✓			
13			✓	
14				✓
15		✓		
16			✓	

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 find the effect that different temperature had on the amount of residue from the solution

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

	Temperature	Residue amount dissolved
1.	18°C	6.0g
2.	29°C	8.0g
3.	40°C	10.0g
4.	47°C	11.2g

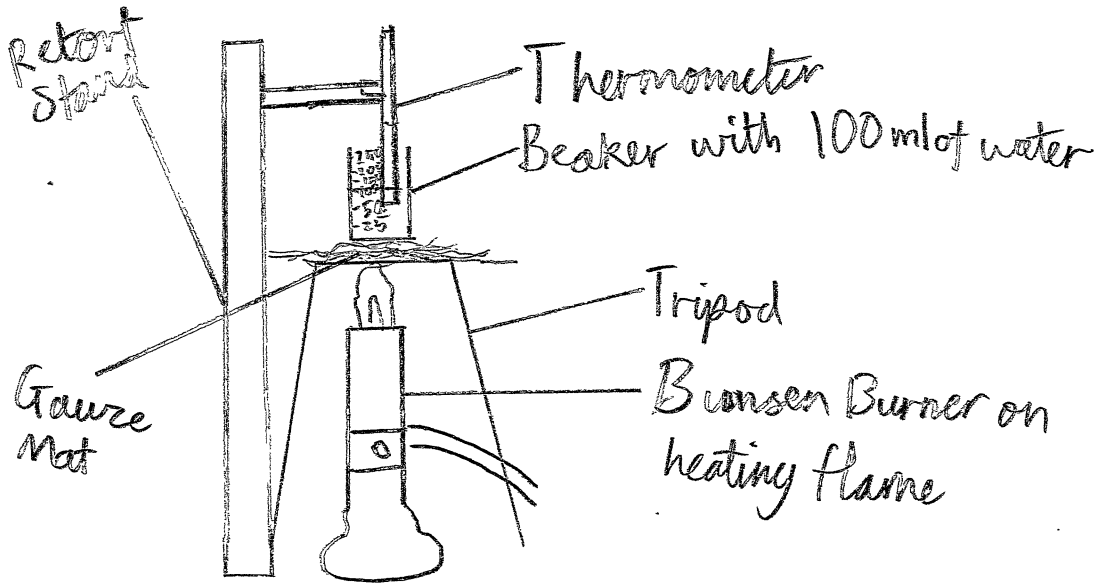
(c) Identify the independent and dependent variable for this experiment. **2**

The dependent variables were the amount of water and crystals and the independent variable was the temperature.

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

A variable that needs to be controlled is the amount of crystals, because the amount of crystals is an independent

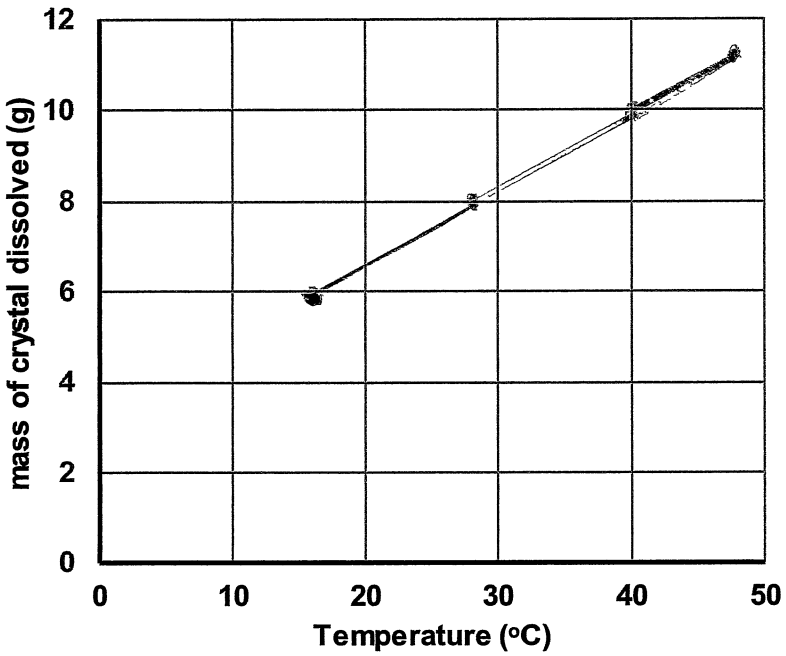
(e) Draw a labelled scientific diagram showing the equipment set up required to carry out step 3 as described above. **3**



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

A possible safety issue would be burning themself on the beaker after they heated it. Another safety issue could be that the crystals are possibly unsafe to touch and are possibly unstable and could have a reaction with the water.

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



(h) Write a conclusion for the experiment. **1**

After heating the solution more of the residue dissolved and as the temperature increased so did the amount of residue.

Question 17 (4 marks)

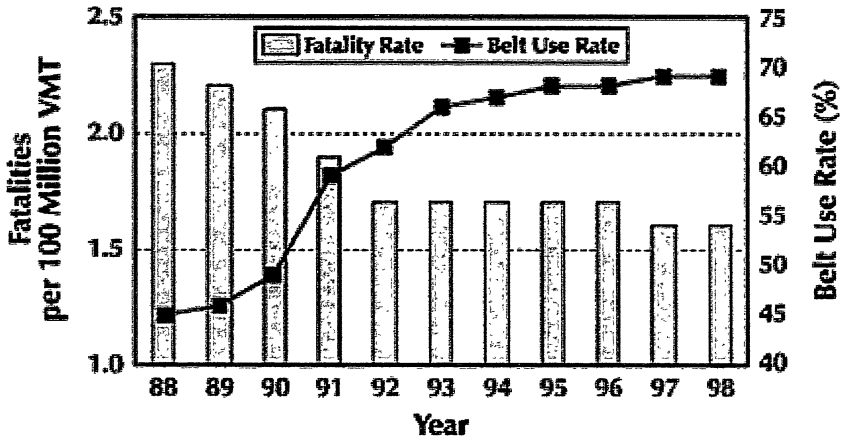
The following scientists are working in different branches or disciplines of science. Identify which branch each is working in:

4

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

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**

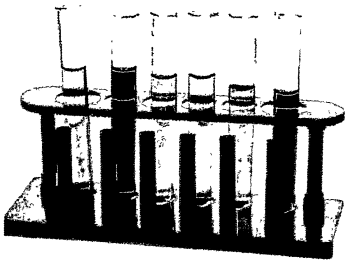
The mortality rate steadily decreas as the seatbelt use rate increases, bringing the seat belt rate in 1985 45% up to 70%.

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

During the earlier years presented on the graph the seat-belt rate was incredibly low and more fatalities occoured whereas in the later years using seatbelts hiked and mortalities decreased, proving that seatbelts improve car safety.

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 length of this diagram is 4.5 cm so if the drawing was two times bigger than the object then it would be 2.25 cm long.

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 diagram above isn't two dimensional and is unlabelled, which makes it confusing and unproffessional.

END OF EXAM