Class:
G O S F R (D)

Student Name: Lucy Magri

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				
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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 whether the temperature of water affects the weight of the amount of crystals that dissolve in the water.

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

Temperature (°C)	weight of Crystals that dissolved (g)
18	6.0
29	8.0
40	10.0
47	12.2

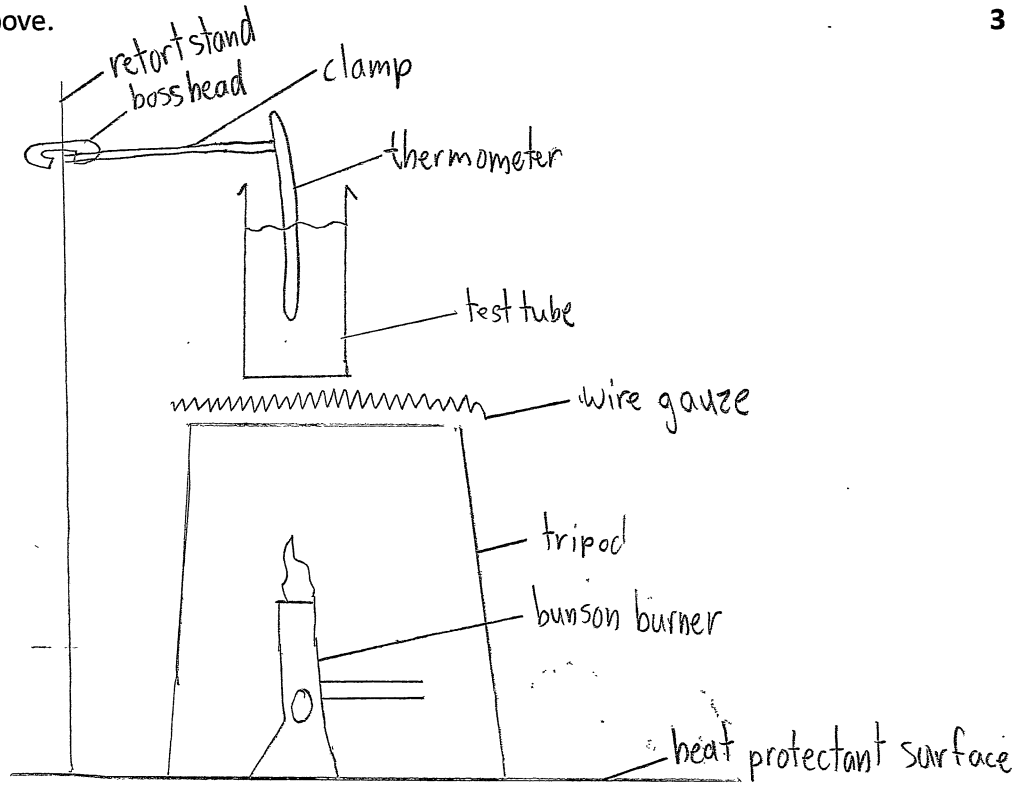
(c) Identify the independent and dependent variable for this experiment. **2**

The independant variable is the temperature of the water, and the dependant variable is the weight of the crystals that dissolved.

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

The controlled variable would be the amount of water used to dissolve the crystals.

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

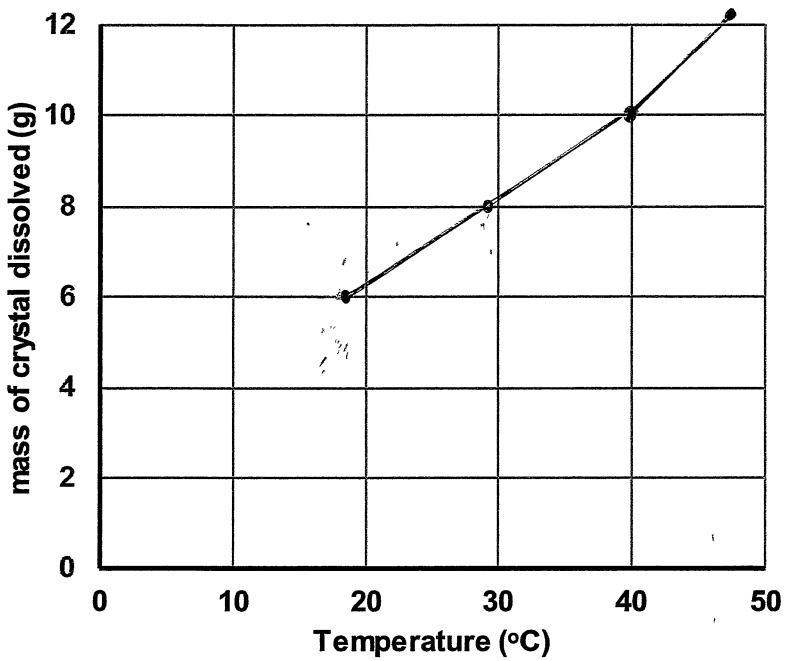


(f) Identify two safety issues the student will have to be concerned with through this experiment. **2**

1. Making sure no one gets burnt from the bunson burner is a safety issue.

2. Making sure no crystals or hot water gets in someones eyes is an important safety issue.

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



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

The higher the tempurature of the water was heated to, meant that a larger amount of the crystals dissolved.

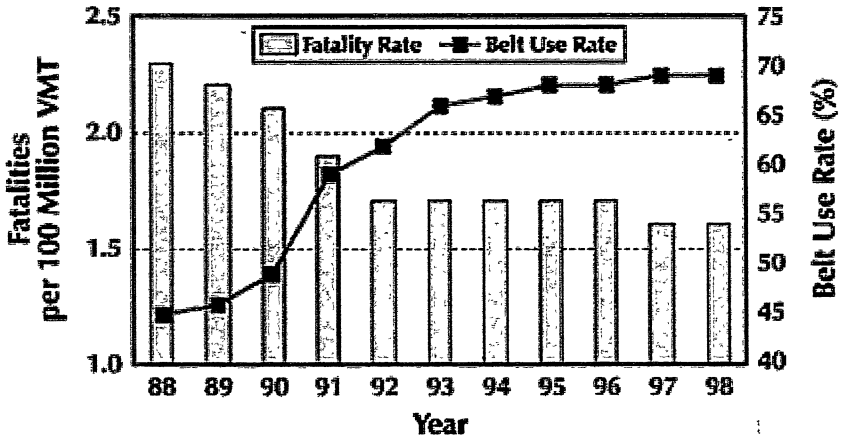
Question 17 (4 marks)

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	Chemistry
Shaun is investigating the eating habits of insects	Icthology
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**

As the belt use rate gets higher, the fatality rate gets lower. The belt use rat increased by around 20%, and the fatality rate decreased by 60 million.

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

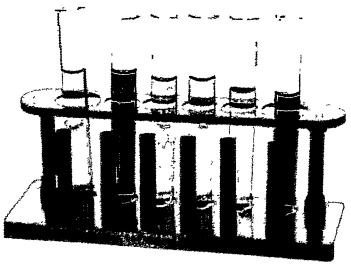
The fatality rate from 1988 to 1998 decreased from 230 million to 160 million, and the belt use rate from 1988 to 1998 increased from 45% to just less than 70% of the population. Using this data, I conclude that seat belts provide safety and decrease the amount of road fatalities.

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 the diagram 4.3 cm. 4.3 divided by 2 is 2.15. The actual length of the diagram is 2.15 cm.

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

1. The diagram is three-dimensional instead of 2-D.

2. The diagram is not labelled.

END OF EXAM