Class:
G O S F R (D)

Student Name: Rem, West

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 figure out the effect of the water temperature changing and see how many grams of crystal dissolved.

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

Temperature (celsius)	dissolved crystal
18°	6g
29°	8g
40°	10g
47°	11.2g

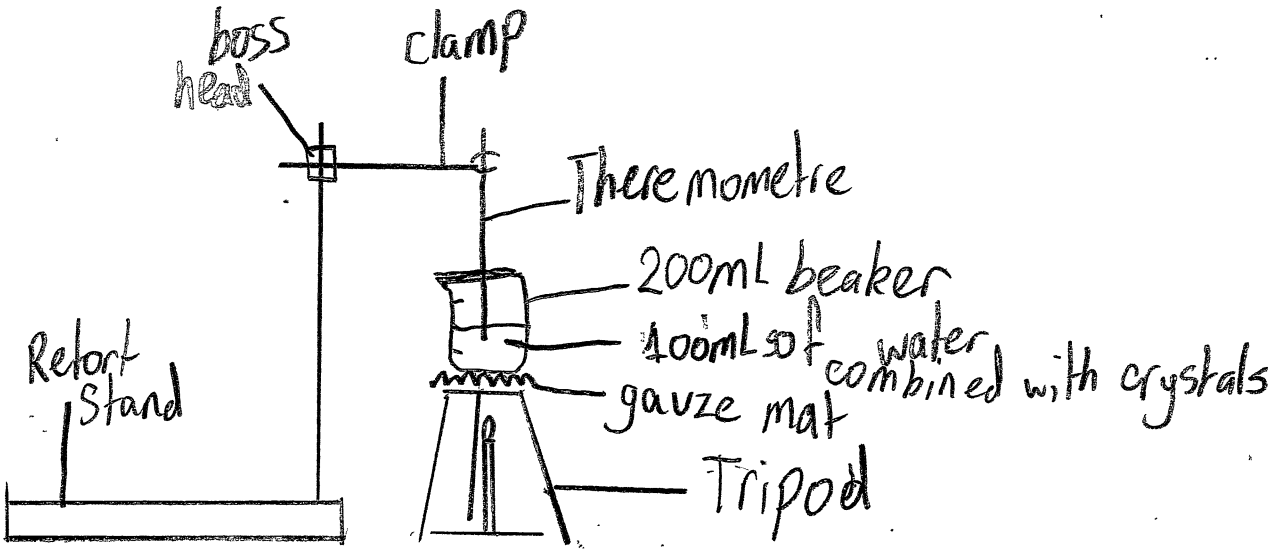
(c) Identify the independent and dependent variable for this experiment. **2**

The independent variable was the water temperature while the dependent variable was the dissolved crystal.

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

The variable that needs to be controlled is the amount of water and amount of crystal

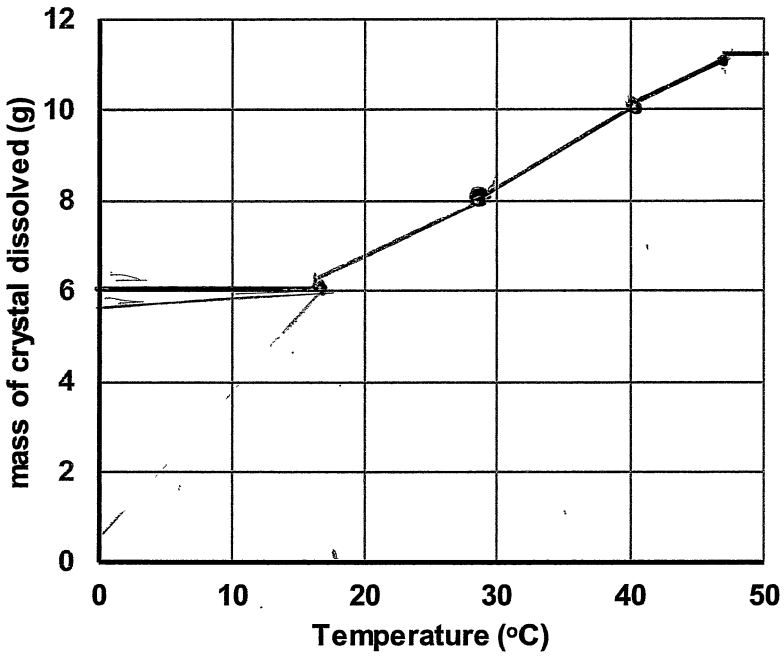
(e) Draw a labelled scientific diagram showing the equipment set up required to carry out step 3 as described above. **3**



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

1. The first safety issue is the bunsen burner flame. Make student knows where the fire eugstinguisher is.
2. The second issue is hot water which can lead to severe burns and blisters.

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



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

To conclude my experiment, the data I have gained is the hotter the water the more crystals will dissolve.

Question 17 (4 marks)

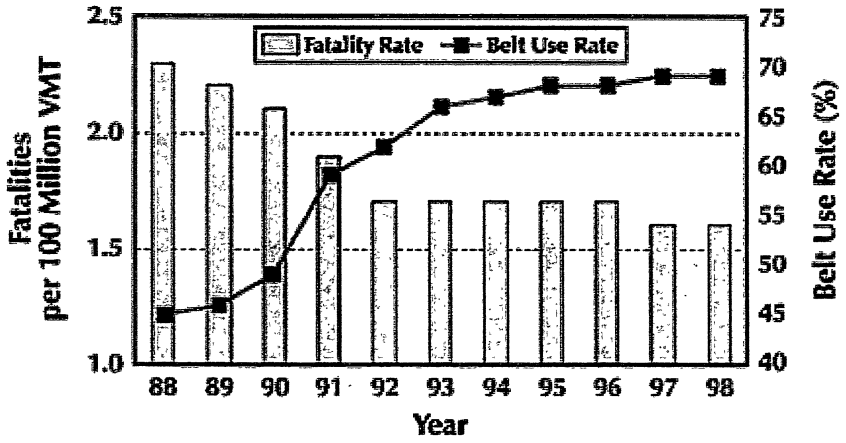
The following scientists are working in different branches or disciplines of science. Identify which branch each is working in:

4

Activity	**Branch of Science**
Paris is studying the crystals embedded in a rock.	geography
Beau is developing a new type of plastic	
Shaun is investigating the eating habits of insects	insectology
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 Using the data collected, the fatalities have significantly dropped while seat belt use has sky rocketed.

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

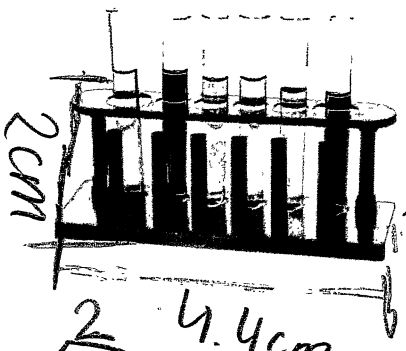
The conclusion I have come to is that the more people using seatbelts has caused a massive drop in car fatalities.

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



4.4cm (used ruler)

$$2\overline{)4.4} = 2.2 \qquad 2\overline{)10} = 4.4\text{cm}$$

Therefore the piece of equitment is 2.2 in length and 4cm in height.

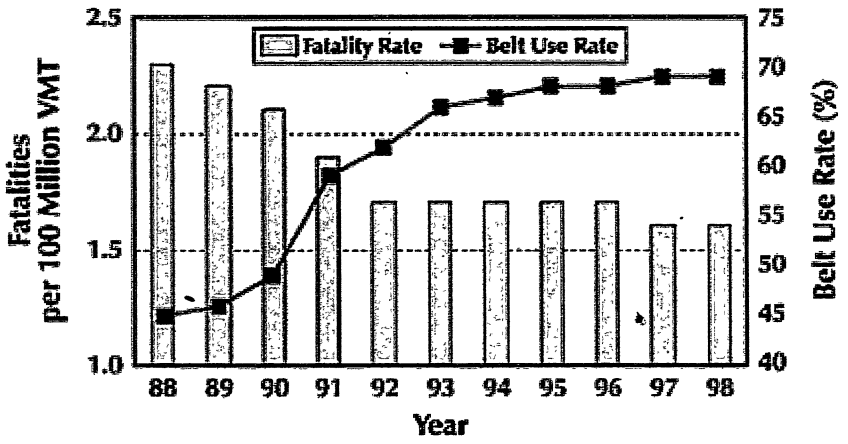
b) There are some problems with the equipment diagram above. Identify two things that the scientist needs to change to accurate represent the equipment above. 2

1. The drawing is 3D and on an angle
2. Lots of colour was used instead of shading.

END OF EXAM

Question 18. (4 marks).

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



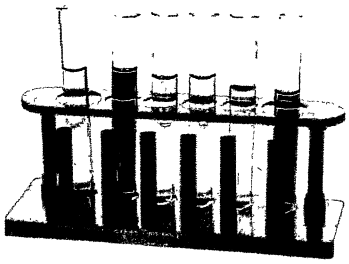
(a) According to this data what is the trend shown in the number of fatalities between 1988 and 1996? Provide data to support your answer. **2**

During the years of 1988 and 1990, seatbelts are barely worn, but as the years go by, the percentage increases. The graph clearly shows the percentage increasing as the years go by.

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

Each year, the percentage of people wearing seatbelts increases and the road fatilities decrease. This means that road fatilities are having an impact on the number of seatbelts being worn. It can clearly be seen as towards the end of the 1900s the percentage of seatbels worn increases significantly.

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



If each test tube is about 2.5cm, then 2.5cm ÷ 2 is equal to 1.25cm, which is the actual size.

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 scientist needs to label the diagram and needs to make its size much smaller in order for it to be accurate.

END OF EXAM