Class:
G O S F R (D)

Student Name: Nana Matsumoto

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 out how much crystal will be dissolved with different temperatures of water

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

temperature (c°)	crystal dissolved (grams)
18	6
29	8
40	10
47	11.2

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

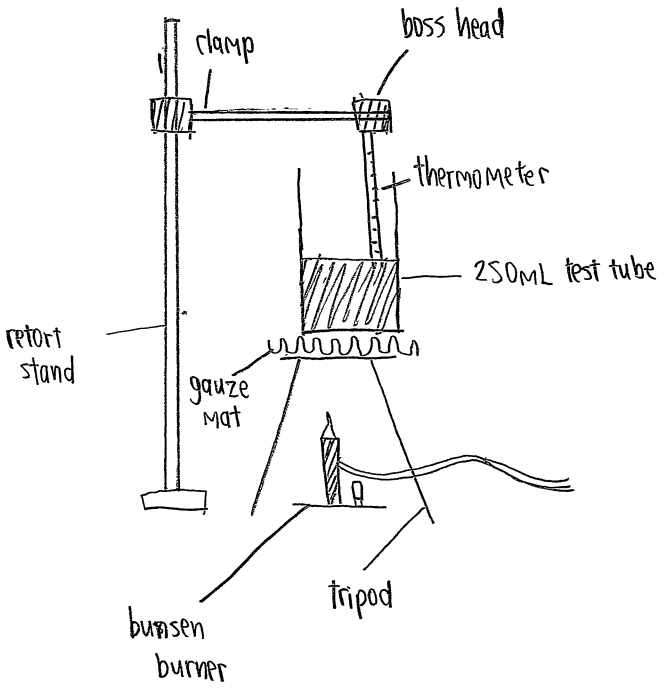
independant: the crystal mass

dependant: temperature of water

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

amount of water in the test tube

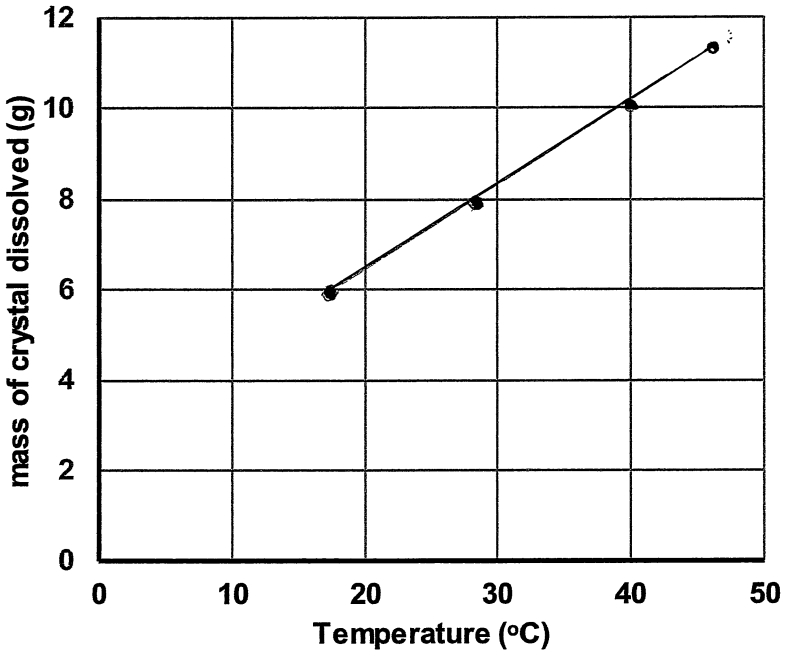
(e) Draw a labelled scientific diagram showing the equipment set up required to carry out step 3 as described above. **3**



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

- ~~safety glasses~~ the solution of the crystal and water
- the flame of the bunsen burner could potentially injure someone

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



(h) Write a conclusion for the experiment. 1

As the ~~tem~~ temperature of the water rises, the mass of crystal dissolved increases.

.....

Question 17 (4 marks)

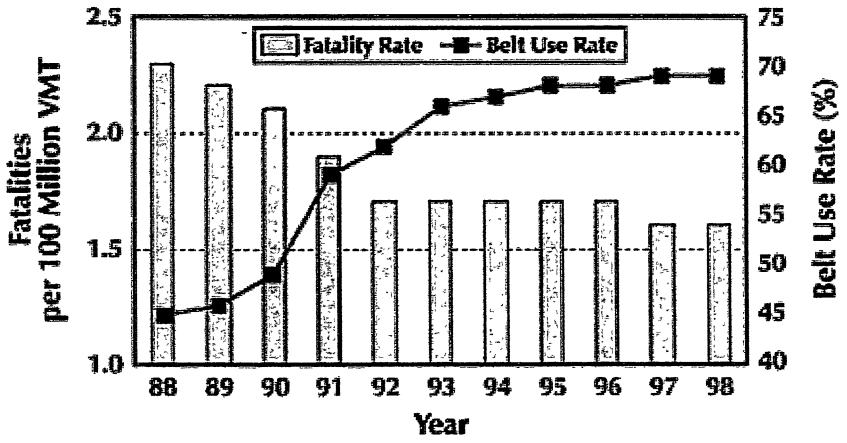
The following scientists are working in different branches or disciplines of science. Identify which branch each is working in:

4

Activity	Branch of Science
Paris is studying the crystals embedded in a rock.	geology
Beau is developing a new type of plastic	plastiology
Shaun is investigating the eating habits of insects	insectology
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 number of fatalities has decreased because the number of fatalites in 1988 was estimated about 2.2S however in 1996, it has decreased to about 1.7S.

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

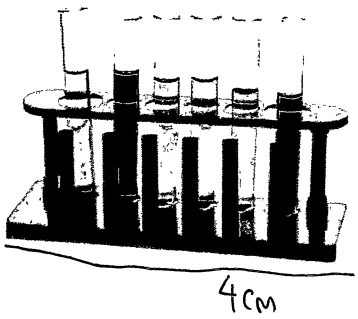
As the number of people using seatbelts rises, the number of fatalities has decreased. We can conclude that wearing seatbelts is more safer for passengers to prevent fatalities.

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



$4 \div 2 = 2$

2cm

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 needs to be 2D
- there should be labels for the equipment

END OF EXAM