Class:
G O S F R (D)

Student Name: Ryan Zhu

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**

~~Do crystals dissolve faster or slower in different temperatures?~~

~~Do crystals dis~~Do more crystals dissolve in hotter water?

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

Temperature of water (°c)	Grams of crystal dissolved
18	6.0
40	10.0
47	11.2
29	8.0

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

Independent: the student will perform the experiment.

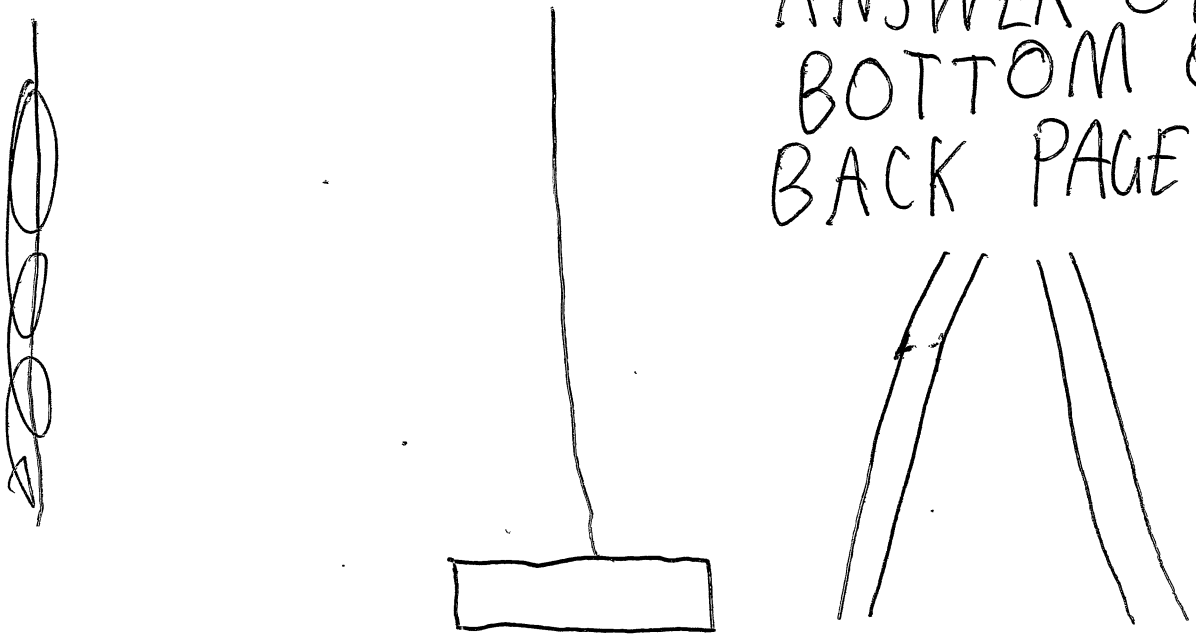
Dependent:

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

The amount of water must be the exact same for each ~~shift in te~~ change of temperature, and refill of crystals.

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

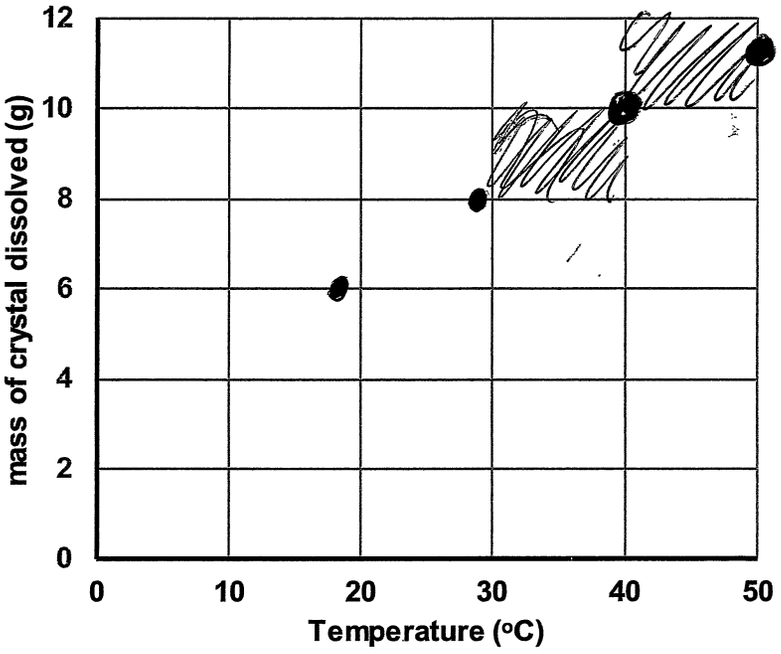
ANSWER ON BOTTOM OF BACK PAGE



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

To make sure there are no gas leaks, and that the flame is not left unattended

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



THE SCRIBBLES OONT MEAN ANYTHING

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

~~Er~~ More crystals dissolve in hotter water.

Question 17 (4 marks)

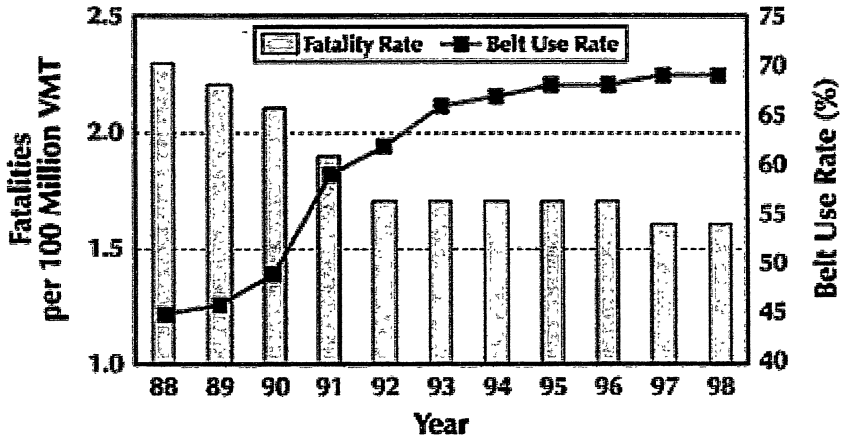
The following scientists are working in different branches or disciplines of science. Identify which branch each is working in:

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	Biology
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 went higher, the fatalities went down.~~ The fatalities lowered, a in 1988 the rate was 2.3, while in 1998 it was 1.7.

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

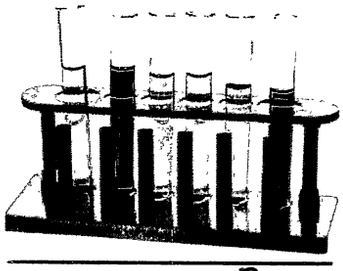
As the belt usage rate went higher, the fatality rate went lower.

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

~~30cm~~



4.5 x 2 = 9

~~30cm ÷ 2 = 15~~ ~~42cm ÷ 2 = 21~~

~~21cm~~ 9cm

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

~~Make it~~ ~~Change it into a more accurate view~~ Make the view more accurate, and remove the liquids inside the test tubes

END OF EXAM