Class:
G O S (F) R D

Student Name: Max Yu

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

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**

How dissolving crystals affect the temperature of the water

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

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

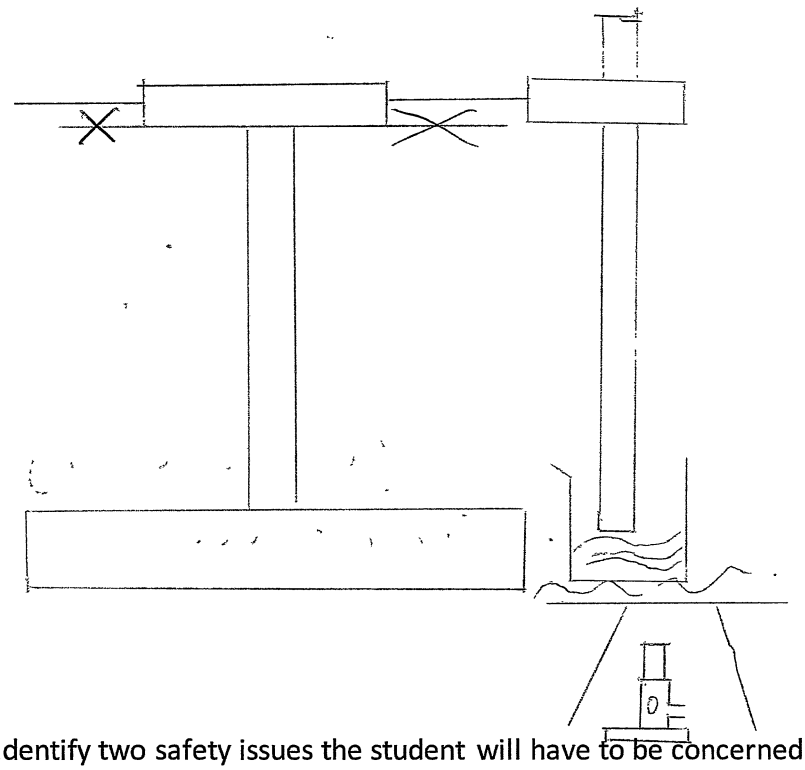
The independent variable is the water and the dependent variable is the crystals

how + changes y

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

The water levels must be the same.

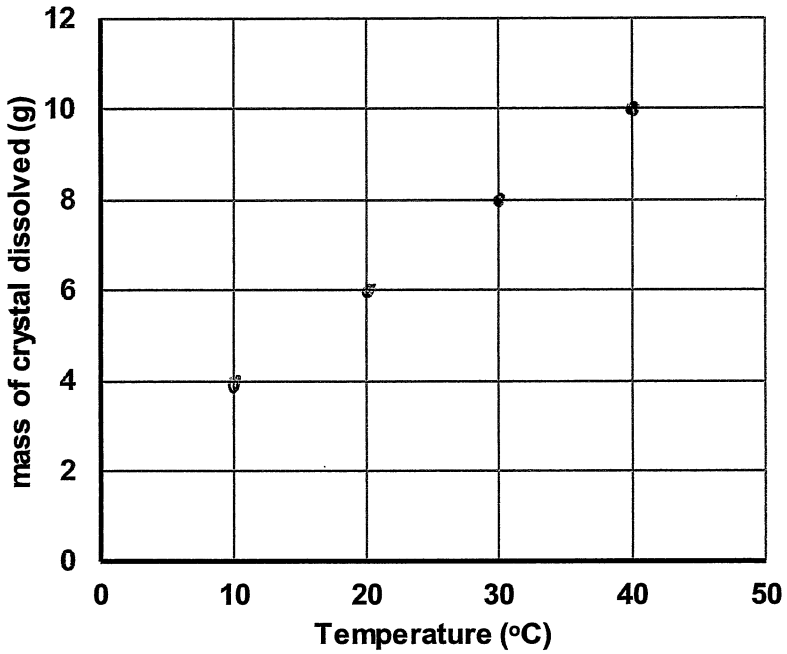
(e) Draw a labelled scientific diagram showing the equipment set up required to carry out step 3 as described above. **3**



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

One safety issue could be burns from touching a beaker without a beaker mits. Another safety issue could be broken glass from breaking a beaker.

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



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

It was found that the more crystals dissolved, the heavier it was.

Question 17 (4 marks)

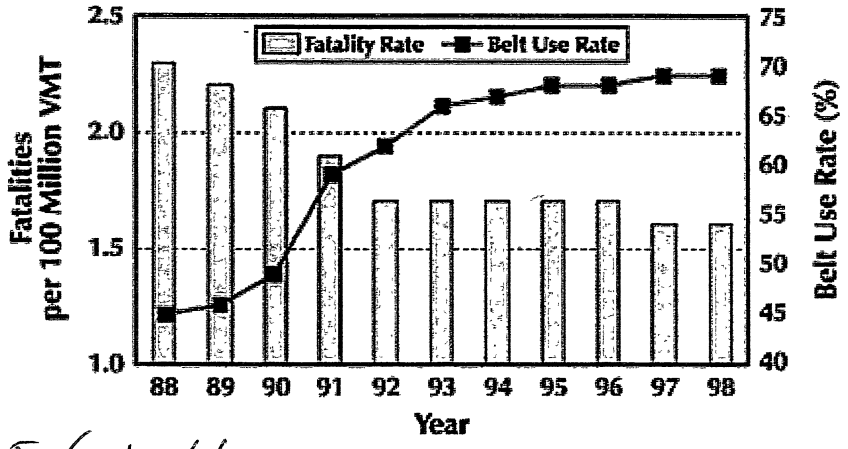
The following scientists are working in different branches or disciplines of science. Identify which branch each is working in:

4

Activity	**Branch of Science**
Paris is studying the crystals embedded in a rock.	Earth Science
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.



45% ~~belt~~ use rate ≈ 225 million casulties

(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 trend is that the higher the belt use rate(%) the lower the casualties.

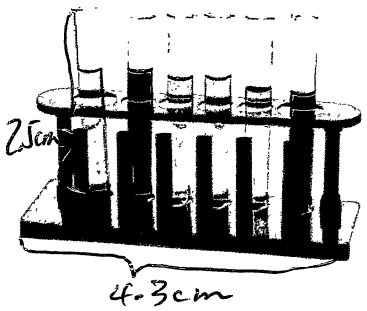
70% use rate ≈ 175 million casualties

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

It was concluded that the higher ~~more~~ Belt Use Rate(%) the less fatalities occured. For e.g in 1988 about ~~2.25~~ 225 million people died when Belt Use Rate(%) was only 45. On the other hand, in 1998 the fatalities were only about 150 million and the belt use rate(%) was about 70. From the data ~~was~~ it is concluded that the higher the belt use rate, the lower the casualties.

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



Test tube rack = 2.15cm test tube = 1.25cm

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 should draw the test tube and test tube rack ~~in~~ scientifically.

END OF EXAM