Class: G O S F R (D)	Student Name: Kiran Evans

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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9				
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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**

Aim: To find the differences of the mass of crystal ~~left behind~~ left behind after being put in water and evaporated.

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

Temperature (C)	Mass left behind (g)
18°C	6g
29°C	8g
40°C	10g
47°C	11.2g

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

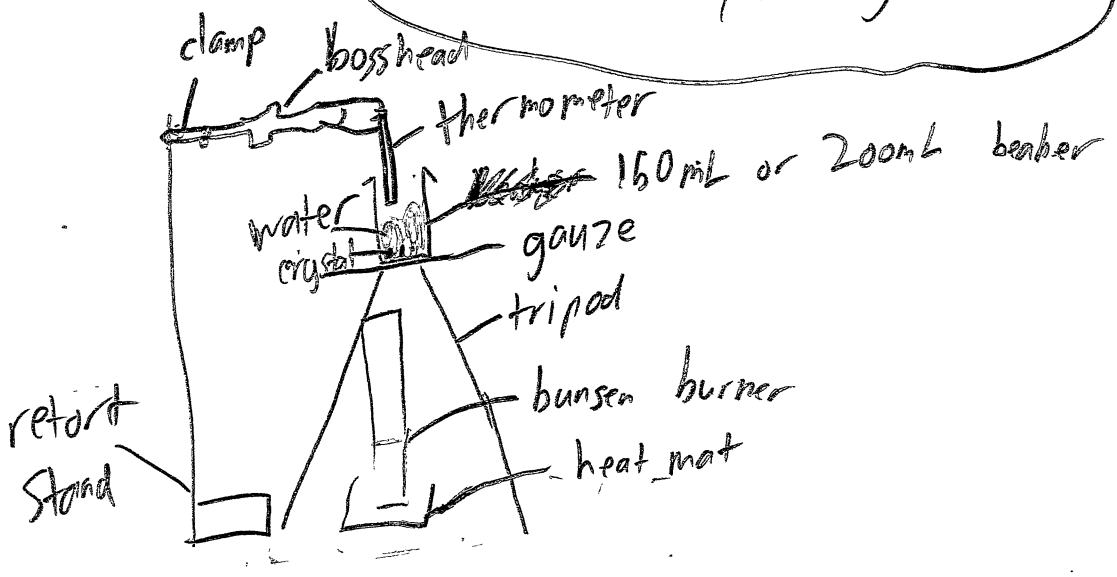
The ~~fixed~~ independent var. variable is temperature at which the water starts at. The dependent variable is the mass of crystal left behind

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

The amount of crystal added each time.

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

did not have a ruler, sorry

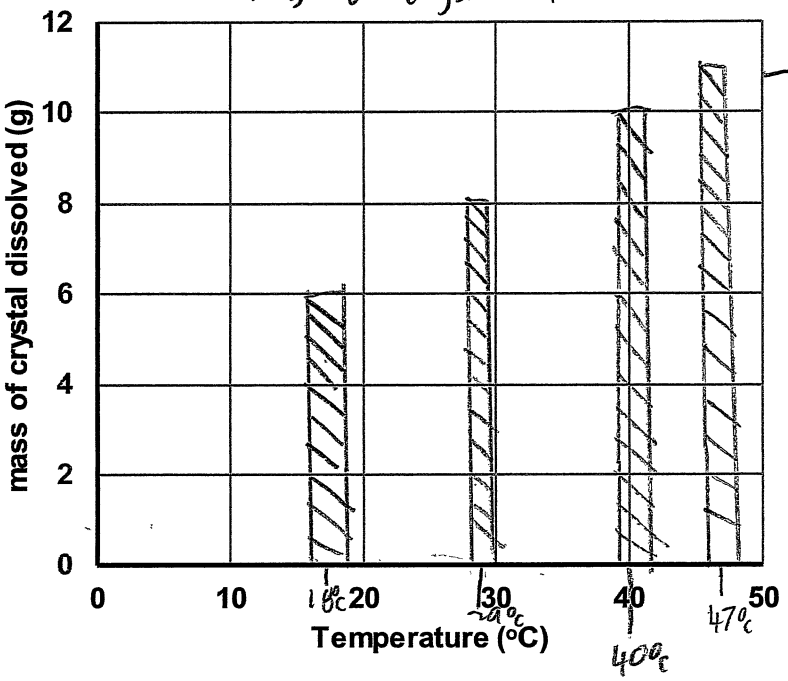


(f) Identify two safety issues the student will have to be concerned with through this experiment. **2**

Safetey issue 1: I believe the student has to be concerned about not getting a large blast of steam in his eyes. Safetey issue 2: I think he has to be concerned about not getting any crystal in his mouth, eyes, or open lacerations ~~beaus~~ because doing so could have adverse affects

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

Mass of crystal left behind after with starting temp. at different temperatures



(h) Write a conclusion for the experiment. 1

My conclusion is that changing the starting temperature of water affects the mass of crystal left behind. The higher the starting temperature, the more crystal left behind

Question 17 (4 marks)

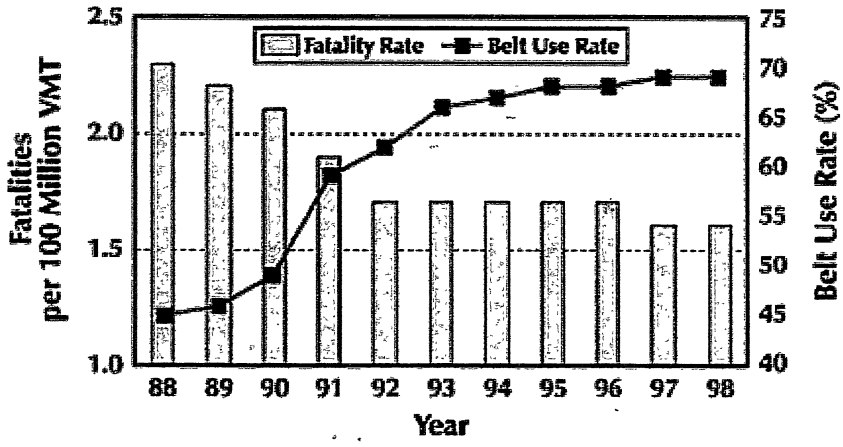
The following scientists are working in different branches or disciplines of science. Identify which branch each is working in:

4

Activity	Branch of Science
Paris is studying the crystals embedded in a rock.	geology
Beau is developing a new type of plastic	chemist
Shaun is investigating the eating habits of insects	entomologist ~~ecologist~~
Angus is monitoring the movement of an asteroid	astronomer

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 trend is that the fatalities each year slowly go down, as seat belt usage goes up. In 1988,

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

I ~~believe~~ conclude that from the data shown, higher seat belt use rates have ~~has~~ lowered the fatality rate per 100 million VmT. My Reasoning is ~~because~~ if you Analyse the graph above, you can see a clear ~~the~~ trend that belt rates ~~have~~ have ~~increa~~ increased, while at the same time, death rates decreased.

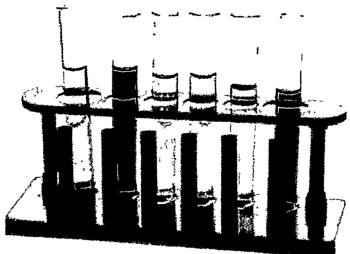
The fatality rate was about 2.3, and the seatbelt usage ~~is~~ rate was about 45%. In 1996, the fatality rate had gone down ~~to~~ about 1.7, and the belt usage rate had gone up to 70%.

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 ÷ 2 = 2.2cm, which is the actual length of the object in real life



44mm = 4.4cm

I measured the drawing to be 4.4cm. I then halved that to get 2.2cm, since the drawing is 2x as large as the object in real life. The answer is 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

I think that scientist has to make the test tubes the same colour and some of the test tube holes are bigger than others to make them more scientifically accurate by making them the same

END OF EXAM