Class:
G O S F R (D)

Student Name: Mervyn Holland

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		✓		

(a) - Aim: To see how ~~the~~ ~~it~~ heat affects the amount of crystal dissolved in water.

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 see how the crystals dissolve depending on the temperature of the water On top of page 7

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

Temp °C	Weight of dissolved matter
18	6.0
~~29~~	8.0
40	10.0
47	11.2

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

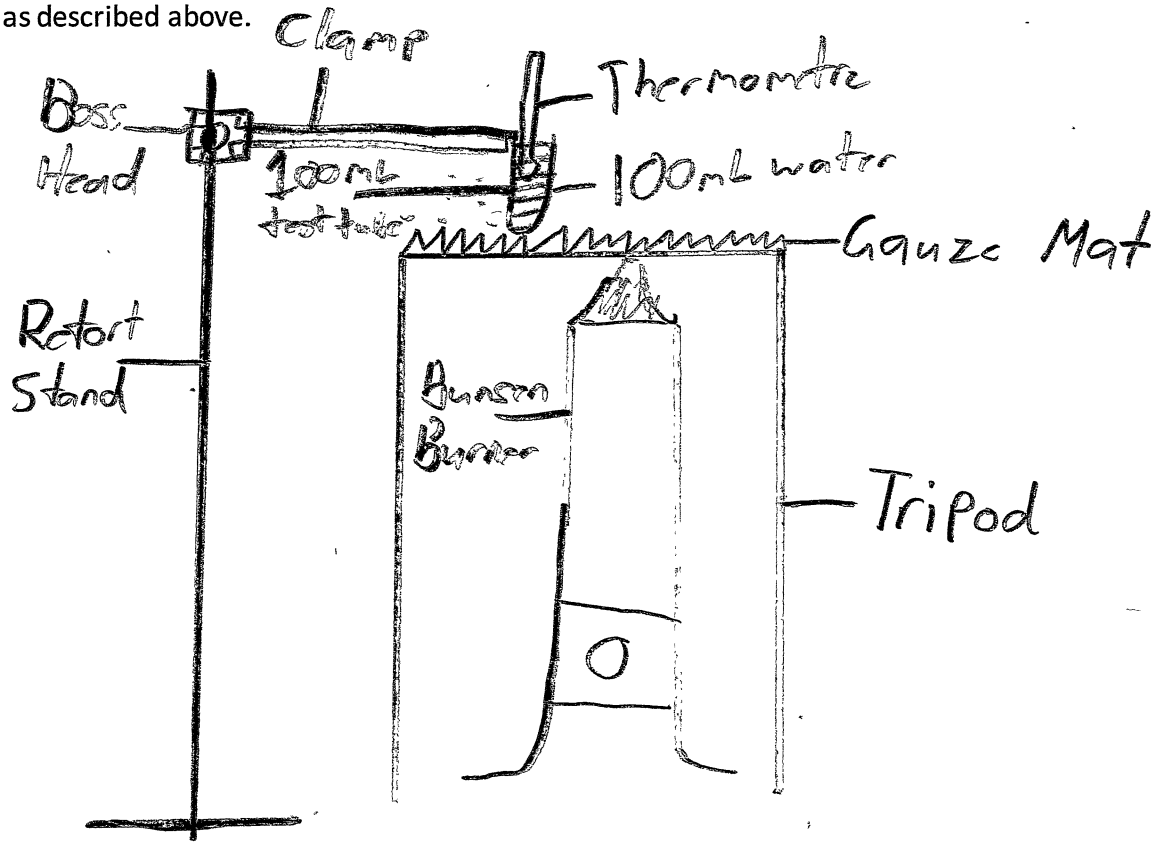
Independent - Temp of the ~~liquid~~ Water

Dependent - Weight of the dissolved matter

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

You need to have the same amount of crystal, and you need to keep it in the same liquid

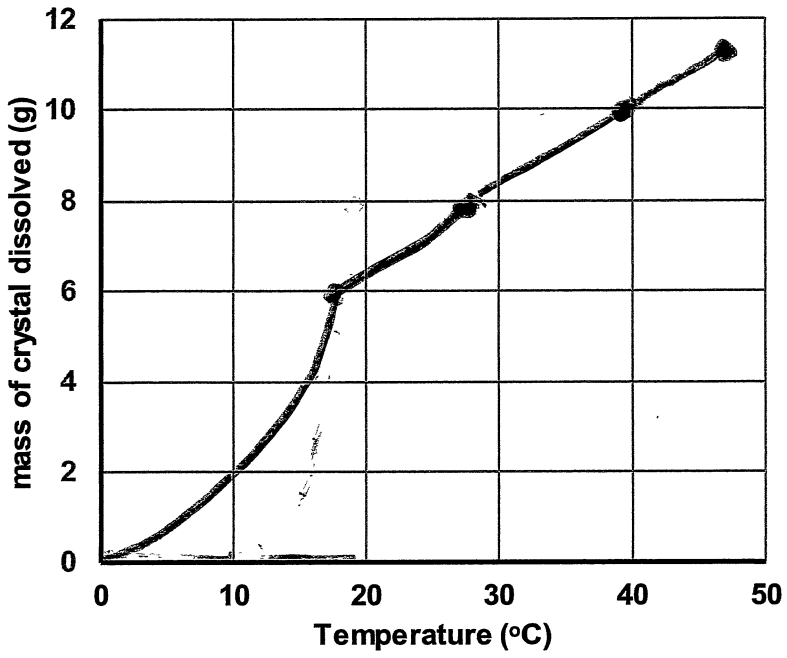
(e) Draw a labelled scientific diagram showing the equipment set up required to carry out step 3 as described above. **3**



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

~~The student needs to watch the flame and take~~ his jacket off if he is wearing one due to the flame and he needs to wear leather shoes and safety glasses so he wont get glass in his ~~eyes~~ eyes or feet.

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



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

In conclusion, there is a great increase in how much crystal dissolves when the temperature rises.

Question 17 (4 marks)

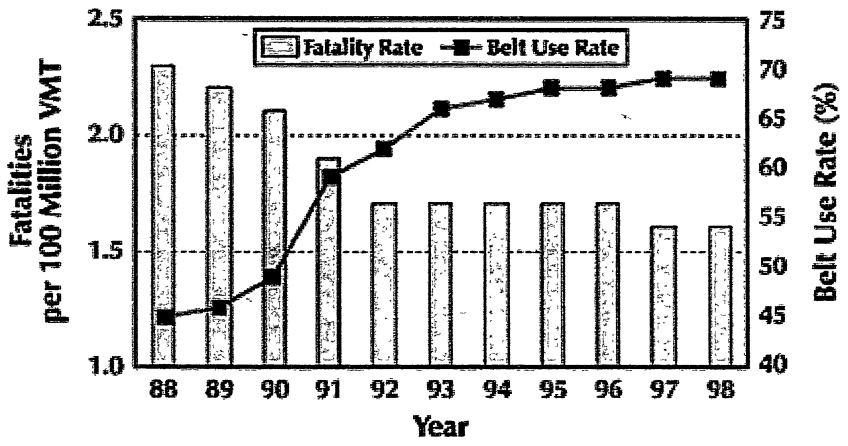
The following scientists are working in different branches or disciplines of science. Identify which branch each is working in:

4

Activity	**Branch of Science**
Paris is studying the crystals embedded in a rock.	Geologist – Geology
Beau is developing a new type of plastic	Chemist – Chemistry
Shaun is investigating the eating habits of insects	Biologist – Biology
Angus is monitoring the movement of an asteroid	Physicist – Physics

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**

Between 1988 and 1996 the fatality rate greatly decreased as the seatbelt usage increased

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

In conclusion, seatbelts greatly decrease the amount of deaths by car crashes. This is likely due to the fact that they hold you in place stoping you from flying forwards and hitting your head

Question 19. (4 marks).

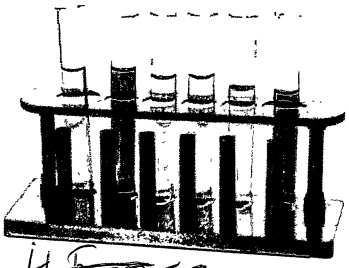
The drawing made by a scientist was twice as big as the real size of the object.

Determine the actual length of the whole piece of equipment. *Show your working.*

2

~~Length of base 16~~

L ÷ 2 = A



4.5cm

2.25cm

2.25cm 225mm 0.0225m

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

There is no colour in a scientific diagram.

It needs to be 2D not 3D

END OF EXAM