

Class:

G O S F R

(D)

Student Name:

Levi Morgan







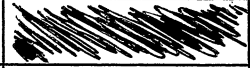

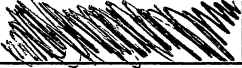







Part A /16

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 18°C. 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 from a retort stand using water at 29°C. I found that 8.0 g dissolved.
4. I repeated it at 40°C and at 47°C and got 10.0 g and 11.2 g as my results

- (a) Write an aim appropriate for the experiment.

1

To see if the temperature of the water affects the amount of crystals dissolved

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

2

Water temp	crystal evaporated
18°C	6.0g
29°C	8.0g
40°C	10.0g
47°C	11.2g

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

2

The independent variable is the water temp and the dependent variable is the crystal left.

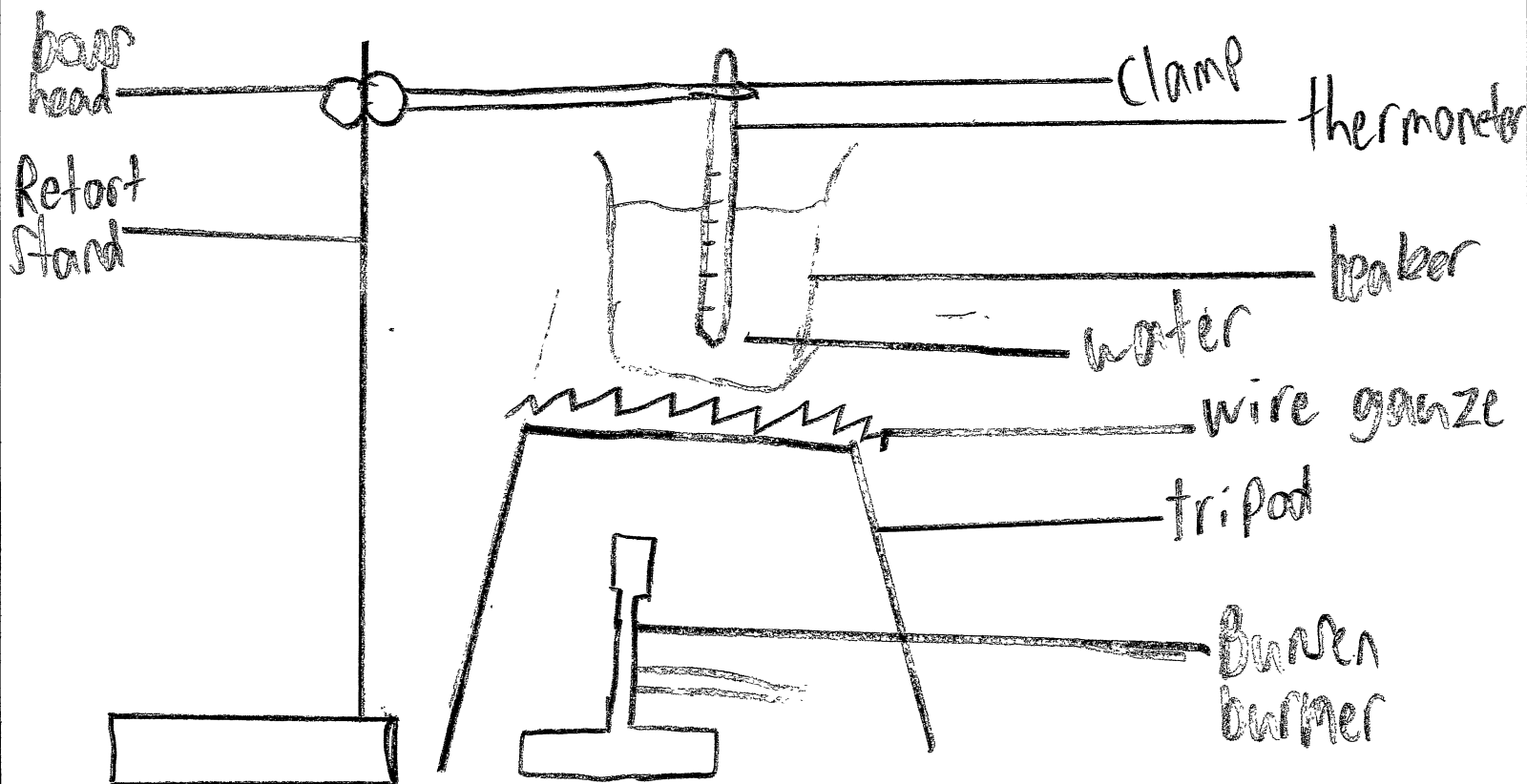
(d) Identify a variable that needs to be controlled during the experiment to make it a fair or valid test.

1

The amount of water and crystals

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

3



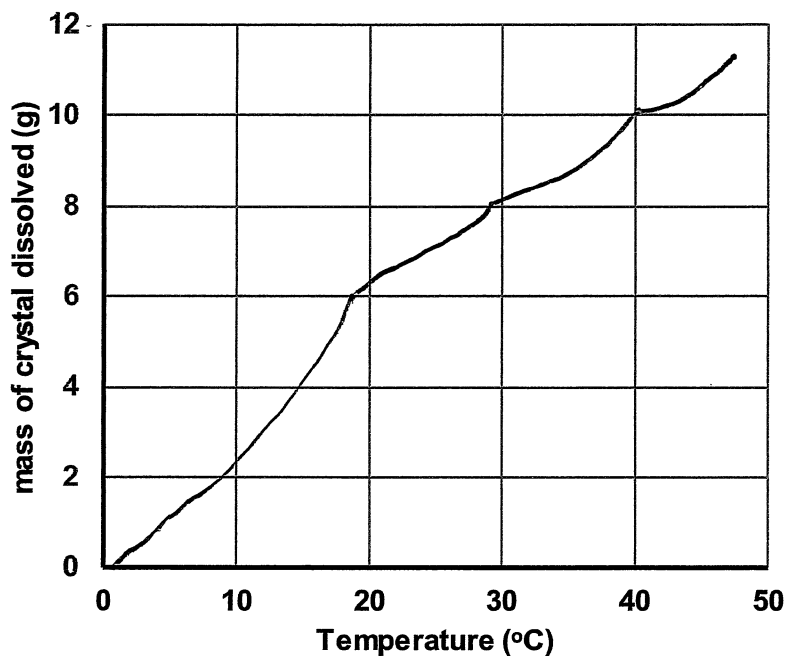
(f) Identify two safety issues the student will have to be concerned with through this experiment.

2

The bunsen burner fire. And the water temperature.

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

3



(h) Write a conclusion for the experiment.

The hotter the water is the more crystal<sup>1</sup>  
will be dissolved.

**Question 17 (4 marks)**

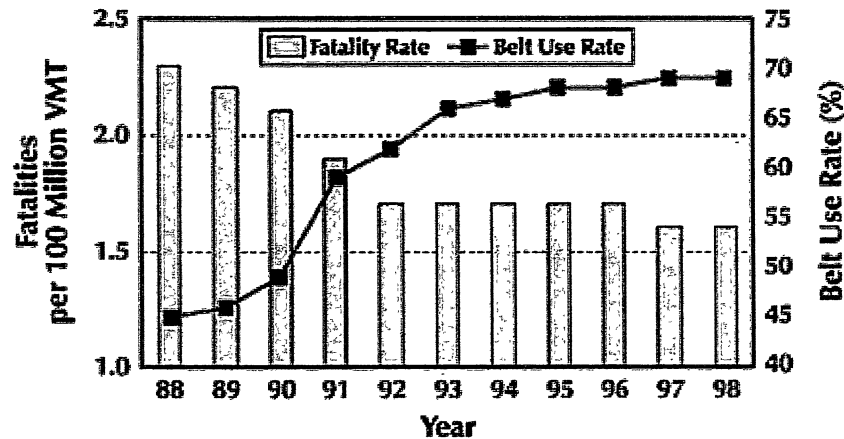
The following scientists are working in different branches or disciplines of science. Identify which branch each is working in:

4

Activity	Branch of Science
Paris is studying the crystals embedded in a rock.	Geology
Beau is developing a new type of plastic	?
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

By 1996 ~~the~~ more people were wearing seatbelts than in 1988 and such there was less road ~~fatalities~~ deaths.

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

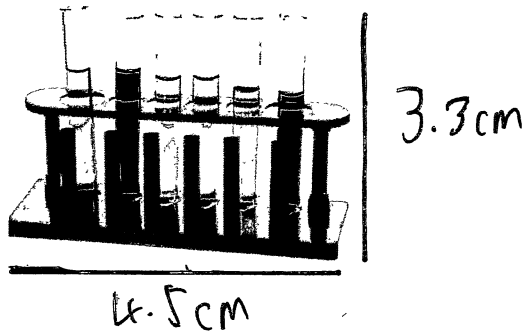
The death rate decreased over the years while the seatbelt usage rate increased over the years.

**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



$$4.5 \text{ cm} \div 2 = 2.25 \text{ cm} \quad 3.3 \div 2 = 1.65 \text{ cm}$$

Real width: 2.25cm Real height: 1.65cm

b) There are some problems with the equipment diagram above. Identify two things that the scientist needs to change to accurately represent the equipment above.

2

They aren't showing what specific things are and it's 3D not 2D.

**END OF EXAM**