

Class:

G O S F R D

Student Name:

Bella

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

Does heating water make a difference when dissolving crystals?

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

2

temperature	dissolved
18°C	6 g
29°C	8 g
40°C	10 g
47°C	11.2 g

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

2

The independent variable is the temperature.

The dependent variable is the grams that has been dissolved.

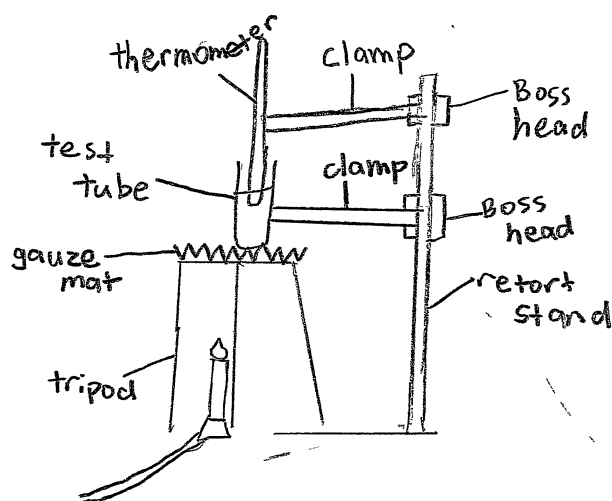
(d) Identify a variable that needs to be controlled during the experiment to make it a fair or valid test.

1

The amount of water must be controlled (100 mL).

(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.

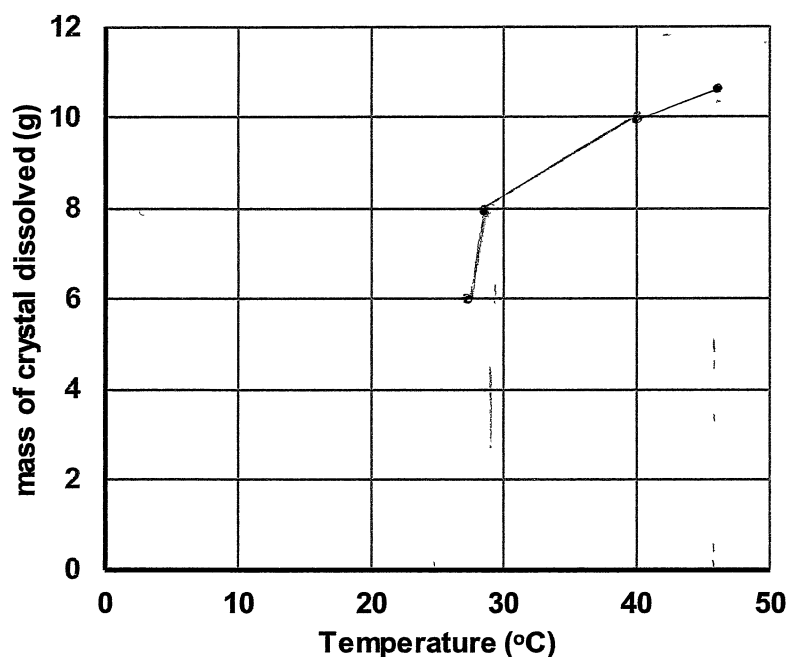
2

1. The student must wear safety goggles/glasses when using a Bunsen burner.

2.

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

3



(h) Write a conclusion for the experiment.

1

The higher the temperature the water is, the more it dissolves.

Question 17 (4 marks)

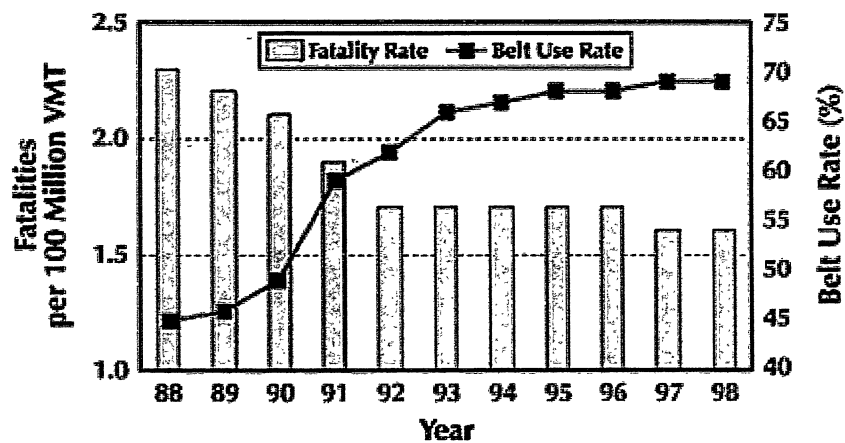
The following scientists are working in different branches or disciplines of science. Identify which branch each is working in:

4

Activity	Branch of Science
Paris is studying the crystals embedded in a rock.	
Beau is developing a new type of plastic	
Shaun is investigating the eating habits of insects	zoology
Angus is monitoring the movement of an asteroid	astrology

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

More people are aware of seatbelts. This is inferred because the fatality rate decreases as the belt increases.

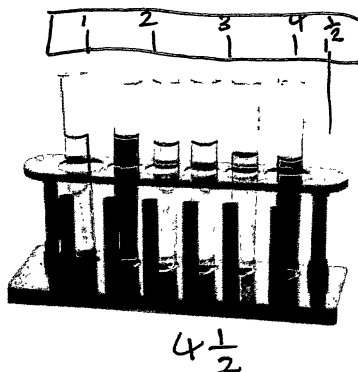
- (b) Analyse the data presented and provide reasons for the conclusion you made. 2

I can conclude that seat belts helps decrease the fatality rate. This is because more people wearing seat belts the ~~higher~~ the fatality rate is.
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



$$4\frac{1}{2}$$

the total length is 2 and $\frac{1}{4}$ cm

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

It must be 2D

it must be labelled

END OF EXAM