

Class:

G O S F R

(D)

Student Name:

Daisha

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 measure how many grams of crystal ^{dissolves} ~~remains~~ after being in water with different kinds of temperatures.

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

2

Temperature of Water (°C)	Amount of Crystals dissolved (g)
18	6.0
29	8.0
40	10.0
47	11.2

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

2

~~The~~ The independent variable is the temperature of the water. The dependent variable is the amount of crystal that was dissolved.

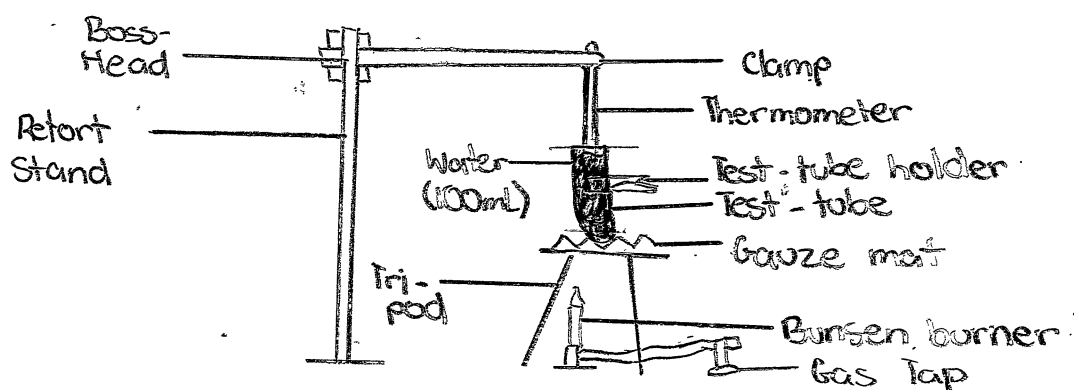
(d) Identify a variable that needs to be controlled during the experiment to make it a fair or valid test.

1

A variable that must be controlled is - how much crystal is being used each time.

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

3



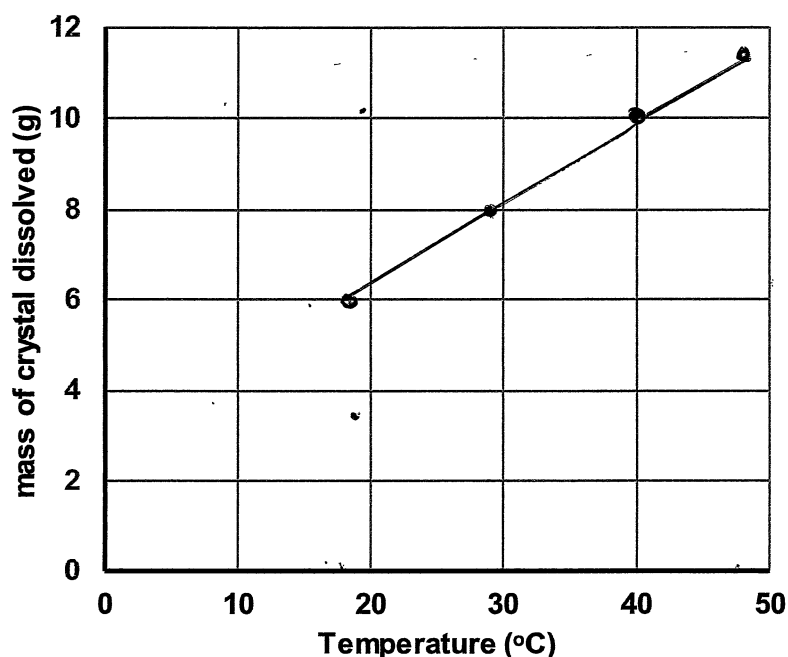
(f) Identify two safety issues the student will have to be concerned with through this experiment.

2

The student must remember to wear safety glasses and if they have long hair, it must be tied back while conducting this experiment.

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

3



(h) Write a conclusion for the experiment.

1

After doing this experiment, we can conclude that the higher the temperature of water, the more grams of crystal dissolved.

Question 17 (4 marks)

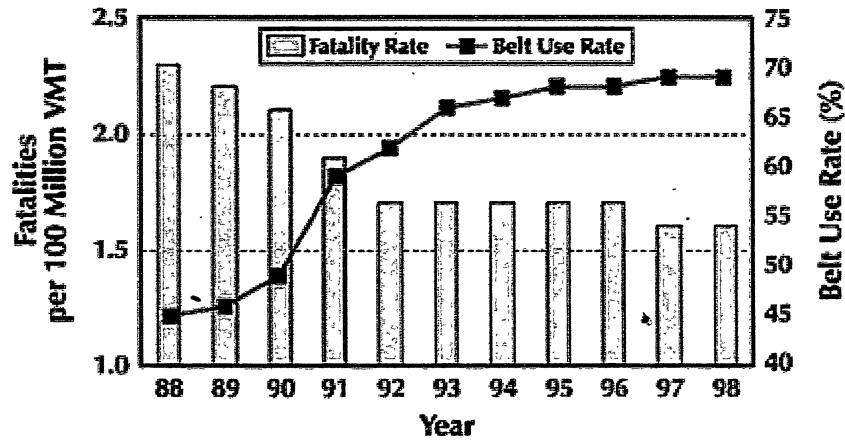
The following scientists are working in different branches or disciplines of science. Identify which branch each is working in:

4

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

During the years of 1988 and 1990, seatbelts are

barely worn, but as the years go by, the percentage increases. The graph clearly shows the percentage increasing as the years go by.

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

Each year, the percentage of people wearing seatbelts increases and the road fatalities

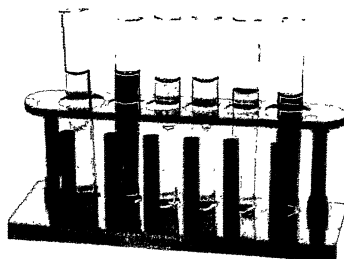
decrease. This means that road fatalities

are having an impact on the number of seatbelts being worn. It can clearly be seen as towards the end of the 1990s the percentage of seatbelts worn increases significantly.

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



If each test tube is about 2.5cm, then $2.5\text{cm} \div 2$ is equal to 1.25cm, which is the actual size.

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

The scientist needs to label the diagram and needs to make its size much ~~drawn for a cross section of it~~ smaller in order for it to be accurate.

END OF EXAM