Class:

G   O   S   F   R   (D)

Student Name:

Nathan Wang

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				✔

Nathan Wang

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**

If the temperature effects how much crystal
dissolves.

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

Temperature (cº)	Amount of crystal dissolved
18	6 g
29	8 g
40	10 g
47	11.2 g

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

....

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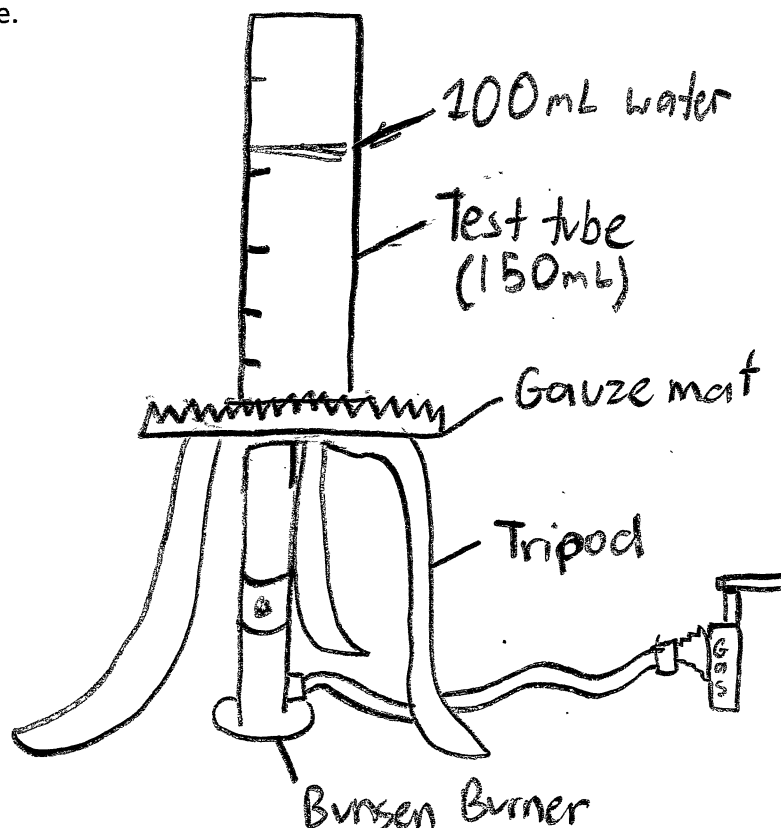
(d) Identify a variable that needs to be controlled during the experiment to make it a fair or valid test. **1**

The amount of crystals put in the test tubes need to be equal, and how long he stirs.

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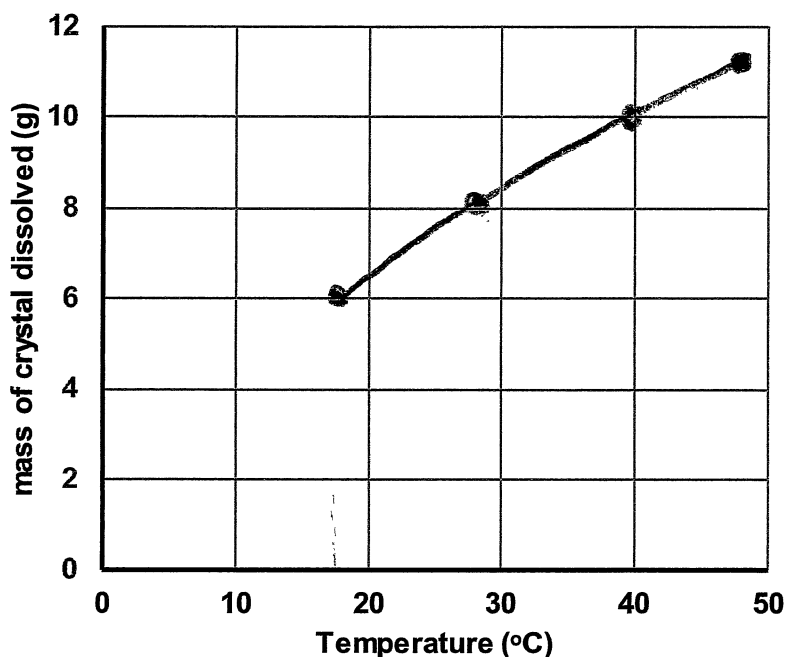

100mL water

Test tube (150mL)

Gauze mat

Tripod

GAS

Bunsen Burner

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

Make sure that there are no leaks in the pipe and that it's not leaking gas.

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

(h) Write a conclusion for the experiment. 1

My conclusion is that the greater the temperature, the more crystal will dissolve, as shown on the graph.

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.	crystalology
Beau is developing a new type of plastic	plasticology
Shaun is investigating the eating habits of insects	insectology
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.
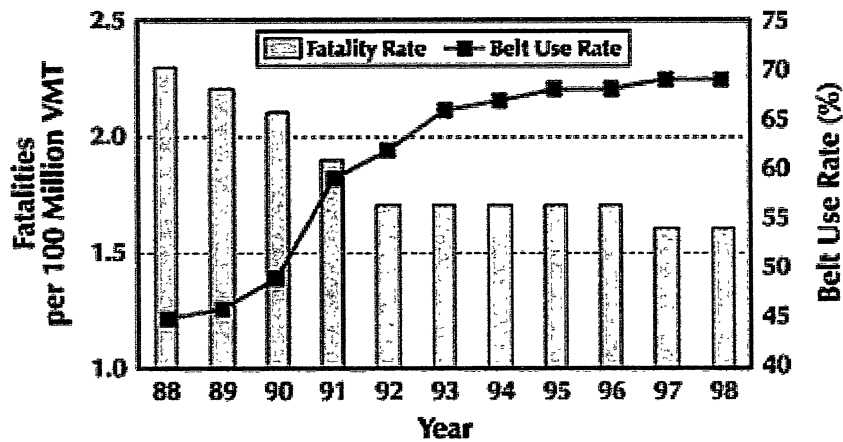
(a) According to this data what is the trend shown in the number of fatalities between 1988 and 1996? Provide data to support your answer.   **2**

The amount of people using seatbelts increase, which lowers the amounts of fatalities.

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

Before 1990, on the graph, it shows that there were more than 200 million fatalities each year, but the sudden increase in seatbelt usage, lowered the fatality rate 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

3 cm

5.5 cm
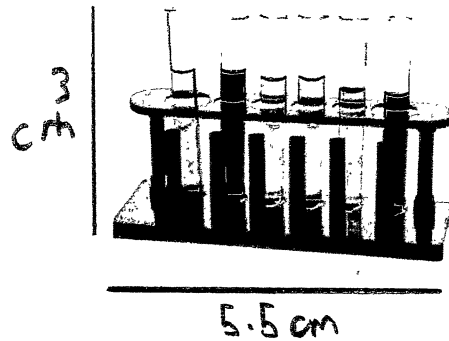
The actual length of the object is 2.25cm in length, and 1.5 m in height.

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

The test tubes are still in the object, so it appears larger.

END OF EXAM