

Name: _____

Q.1

Describe an experiment, using a labelled diagram in the box provided to show the presence of carbon dioxide in air. (9)

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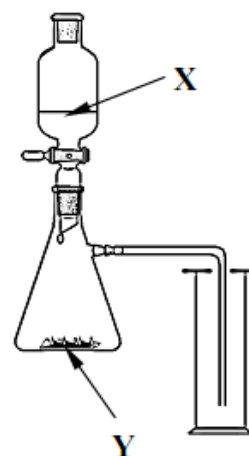
Q.2

The diagram shows an arrangement of apparatus suitable for the preparation of **carbon dioxide gas** in a school laboratory.

Name a suitable substance for **liquid X** and **solid Y** from which carbon dioxide can be made.

Liquid X _____

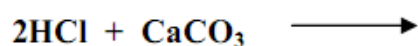
Solid Y _____



Limewater is used to test for the presence of carbon dioxide gas. What happens to limewater when carbon dioxide gas is bubbled through it?

Q.3

(f) Complete the equation:



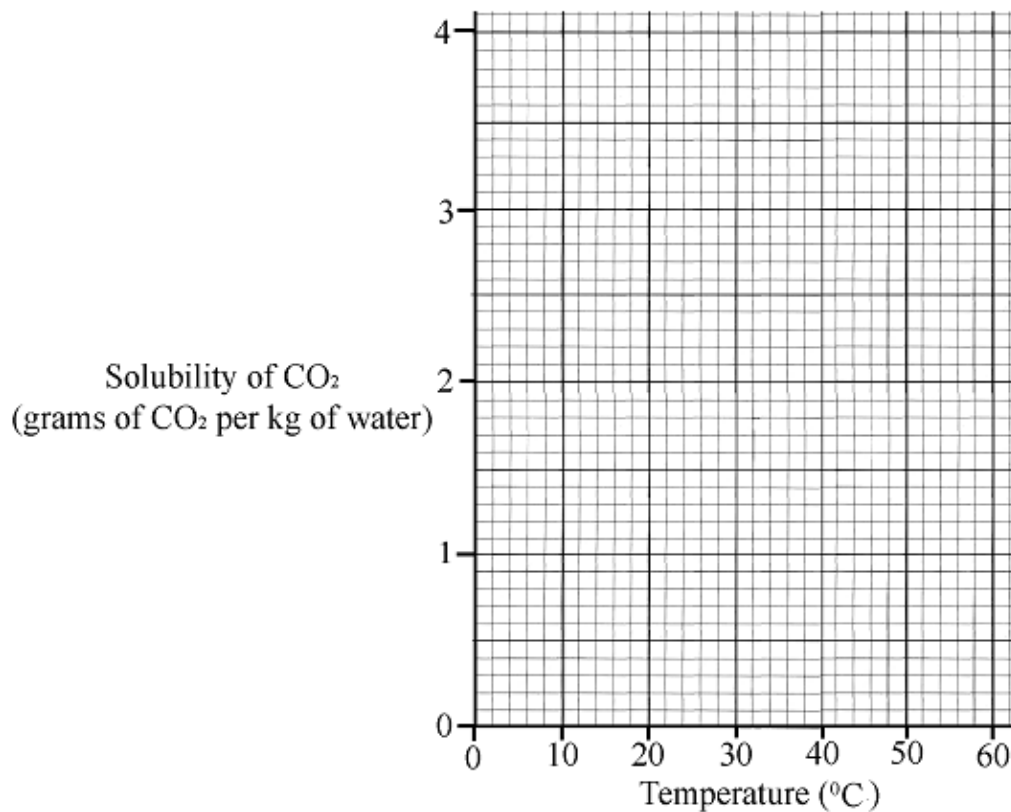
(6)

Q.4

- (a) An experiment was performed to investigate the effect of temperature on the solubility of carbon dioxide in water. The data obtained from this experiment is given in the table below.

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|---|-----|-----|-----|-----|-----|-----|-----|
| Solubility of CO ₂ (grams of CO ₂ per kg of water) | 3.4 | 2.5 | 1.7 | 1.4 | 1.0 | 0.8 | 0.6 |
| Temperature (°C) | 0 | 10 | 20 | 30 | 40 | 50 | 60 |

- (i) Draw a graph of solubility against temperature in the grid below using the data from the table. A smooth curve is required. (9)



- (ii) Usually the solubility of a solid increases with increasing temperature. The solubility of a gas decreases as the temperature increases. Suggest a reason why this decrease happens. (3)

Suggest _____

- (iii) From the graph estimate the temperature at which the solubility of CO₂ is 2 g per kg of water. (3)
