

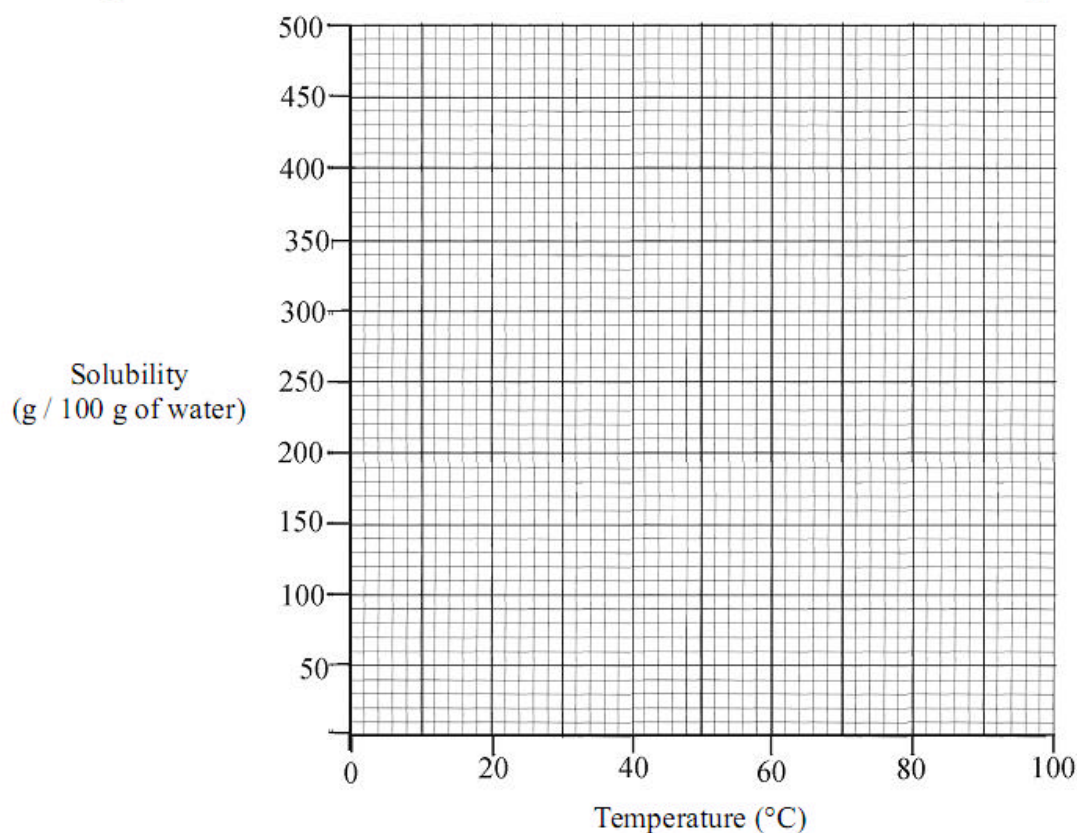
Name: \_\_\_\_\_

**Q.1**

- (a) A science student investigated the solubility of two common substances, sugar and salt, in water for a range of temperatures. The data for sugar are given in the table. Salt maintained a constant solubility of 40 g / 100 g of water for the temperature range investigated, 0 °C to 100 °C.

Sugar (g / 100 g of water)	175	200	240	290	370	480
Temperature (°C)	0	20	40	60	80	100

- (i) Draw a graph of the effect of temperature on the solubility of sugar in the grid below. (9)



- (ii) Use the graph to estimate the increase in the solubility of sugar if the temperature of the solution is raised from 50 °C to 70 °C. (9)

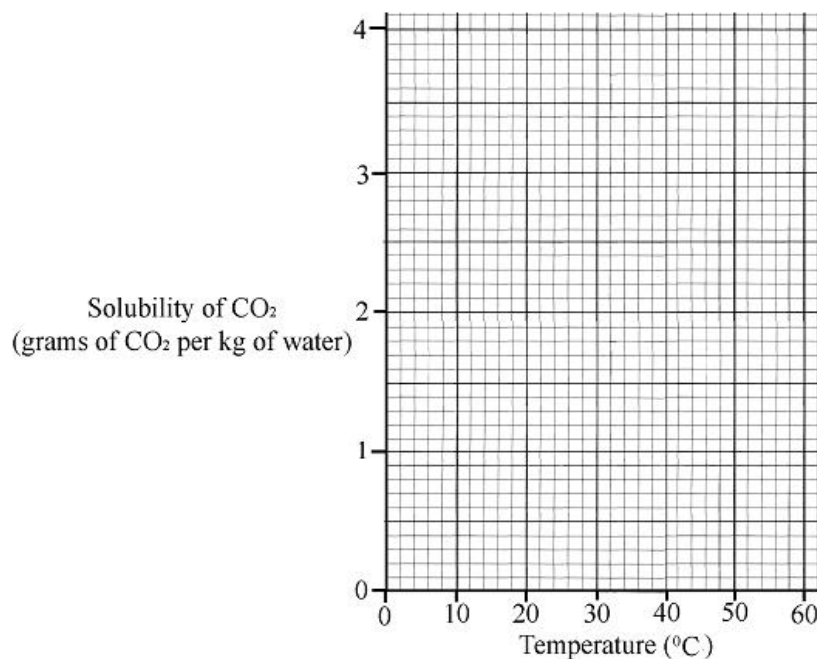
- (iii) Using the same grid, draw a graph of the effect of temperature on the solubility of salt. (3)

**Q.2**

- (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.

Solubility of CO <sub>2</sub> (grams of CO <sub>2</sub> 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 CO<sub>2</sub> is 2 g per kg of water. (3)

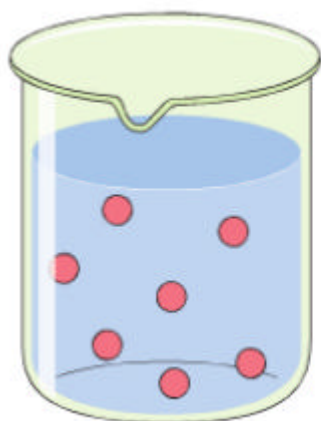
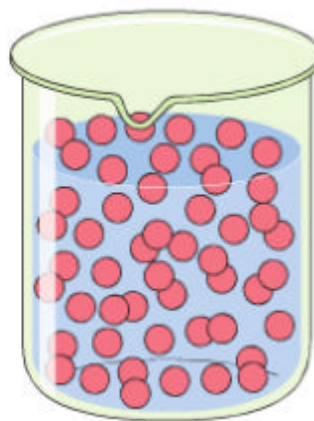
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**Q.3**

**What is a solvent?** \_\_\_\_\_

**What is a Solution?** \_\_\_\_\_

**Which Solution is the concentrated one? A or B?** \_\_\_\_\_

**A****B**

**What is a Saturated Solution?** \_\_\_\_\_