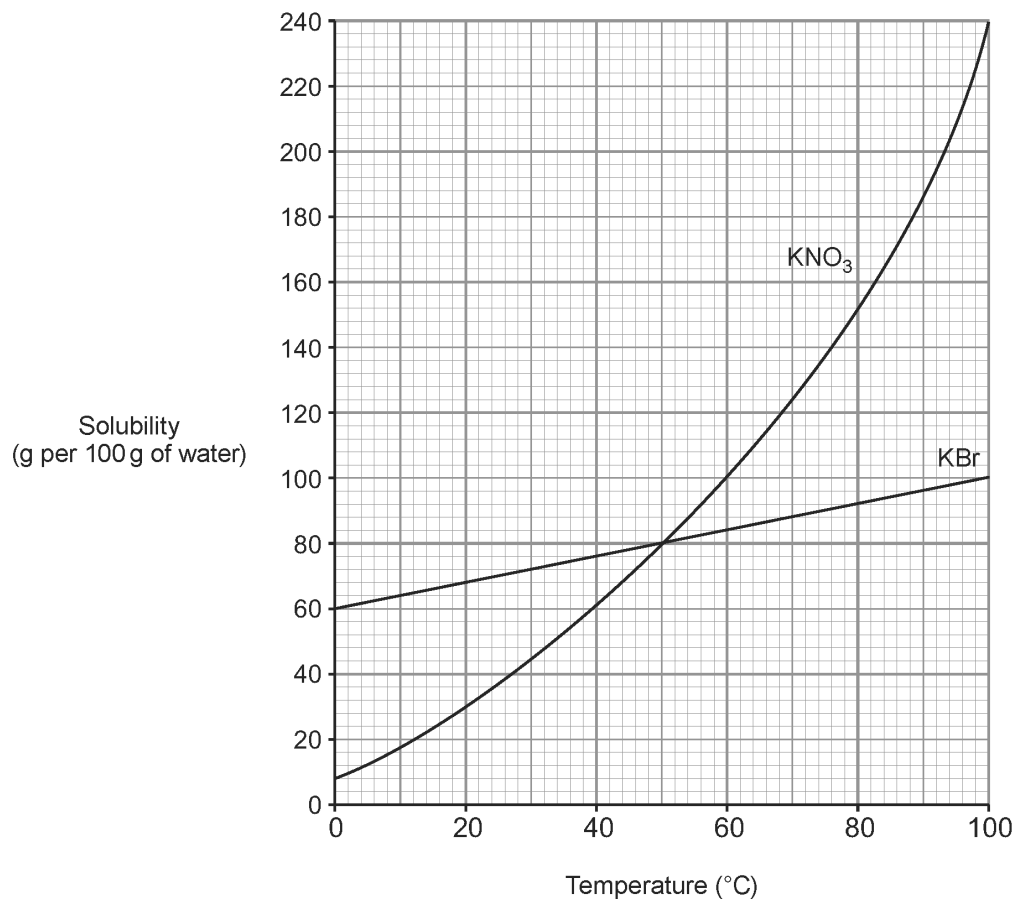


1.

The following graph shows the solubility curves of two substances.



- (a) (i) Use the graph to find the solubility of potassium bromide, KBr, at 60 °C. [1]

Solubility = g per 100 g of water

- (ii) A student places 200 g of potassium bromide in 200 g of water at 60 °C and stirs until no more dissolves. Calculate the mass of solid that remains undissolved. [2]

Mass of undissolved solid = g

(b) Compare the solubilities of potassium bromide and potassium nitrate between 0 °C and 100 °C. [3]

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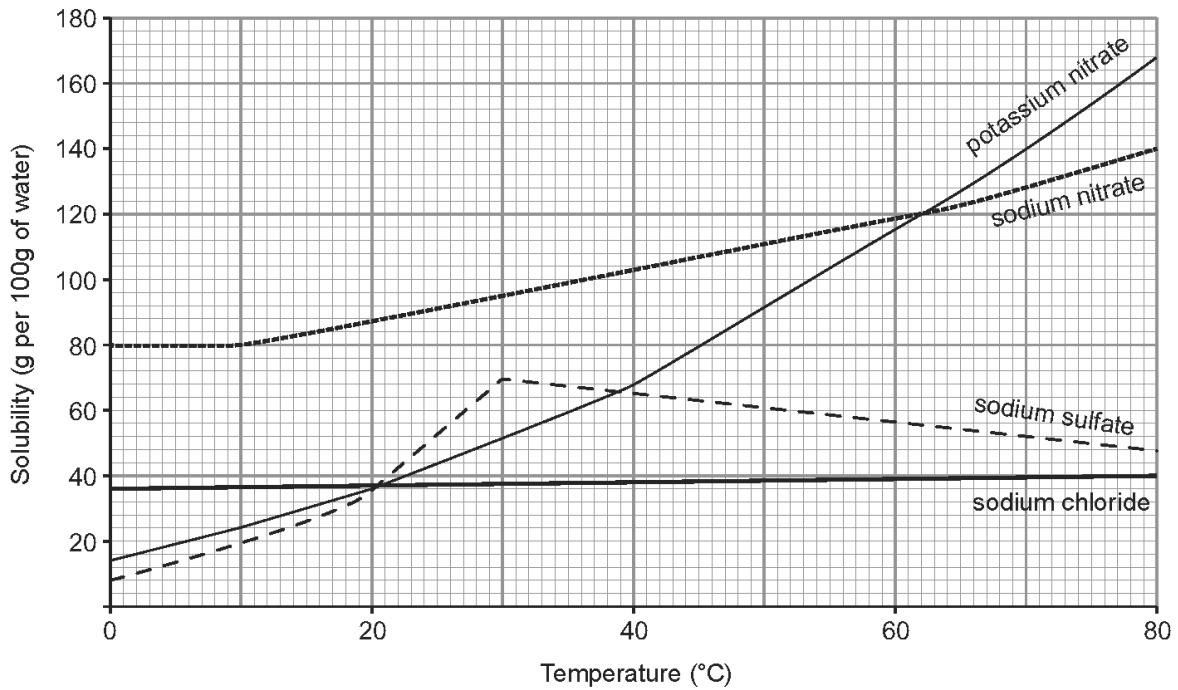
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2.

The following graph shows how the solubility of four different substances varies with temperature.



(a) Name the substance that shows the smallest change in solubility. [1]

.....

(b) Give the temperature at which the solubility of potassium nitrate and sodium nitrate is the same.

..... °C [1]

(c) If a saturated solution of sodium nitrate in 100g of water is cooled from 80°C to 10°C, calculate the mass of crystals that will be formed. [2]

Mass of crystals formed = g

(d) Describe, using data from the graph, how the solubility of sodium sulfate changes with temperature. [2]

.....

6

3.

(a) The box below contains the names of seven different substances.

aluminium	iodine	nitrogen dioxide	crude oil
sodium	sulfur	water	

Use **only** the substances given above to answer parts (i)-(iii).

Each substance can be used once, more than once or not at all.

(i) Name **two** metals. [1]

..... and





(ii) Name **two** compounds. [1]

..... and

(iii) Name **one** mixture. [1]

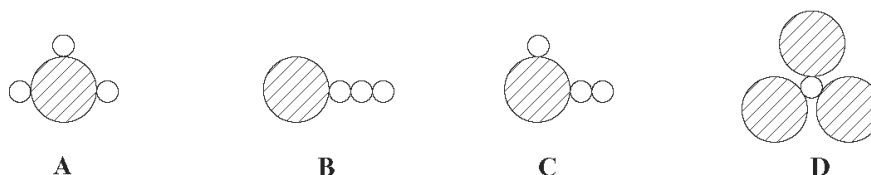
.....

(b) The key below represents atoms of some elements.

			
carbon, C	oxygen, O	nitrogen, N	hydrogen, H

(i) Ammonia has the formula NH_3 .

Choose the letter of the diagram below that represents a molecule of ammonia. [1]



Letter

(ii) Use the key to draw a diagram representing a molecule of

I oxygen, O_2 ,

[1]

II carbon dioxide, CO_2 ,

[1]

(iii) The chemical formula of sodium carbonate is Na_2CO_3 .

I State how many carbon atoms are present in the formula Na_2CO_3 .

[1]

.....

II Give the **total** number of atoms shown in the formula.

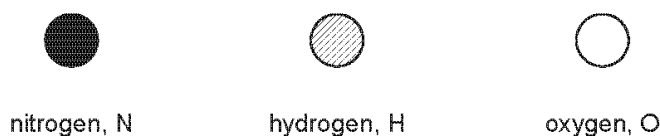
[1]

.....

8

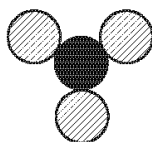
4.

(a) The key below represents atoms of some elements.



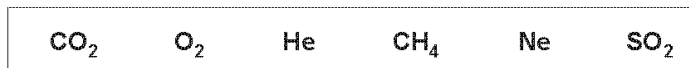
(i) Use the key to draw a diagram representing a molecule of nitrous oxide, N₂O. [1]

(ii) Use the key to give the chemical formula for the following molecule. [1]



Formula

(b) The box below shows the symbols and formulae for some gases.



Choose from the box

(i) two elements, and [1]

(ii) two compounds, and [1]

(c) The chemical formula of nitric acid is HNO₃.

(i) State how many nitrogen atoms are present in the formula, HNO₃. [1]

(ii) Give the total number of atoms shown in the formula. [1]

(d) You may wish to refer to the table of common ions to help you answer parts (i) and (ii).

(i) Give the formulae of the ions present in the compound MgCl₂. [1]

Positive ion Negative ion

(ii) Give the chemical formula for sodium hydroxide. [1]

.....