7. A pupil wanted to prepare some pure crystals of potassium bromide (a salt like sodium chloride) from a very dirty sample. He added the sample to boiling water and filtered it to leave 50 cm^3 of a saturated solution.

When he cooled the solution to room temperature, he obtained some white crystals.

(The solubility of potassium bromide is 100 g per 100 cm^3 of solution at boiling point and 60 g per 100 cm^3 of solution at room temperature.)

(a) (i) What mass of white crystals did he make? (Show your working.)

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..... (2)

(ii) Explain why these crystals would be pure.

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..... (2)

(b) (i) From the solution remaining at room temperature, describe how he could have obtained the rest of the potassium bromide.

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..... (2)

(ii) What mass of potassium bromide would he have obtained?

..... (2)

(iii) Would you expect this potassium bromide to be pure? Give a reason for your answer.

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..... (2)

(Total marks: 60)