

## Question 31 (6 marks)

- (a) A student collected a 250 mL sample of water from a local dam for analysis. The data collected are shown in the table.

Mass of filter paper	0.23 g
Mass of filter paper and solid	0.47 g
Mass of evaporating basin	43.53 g
Mass of basin and solid remaining	44.67 g

$$\text{solid} = 0.24 \text{ g}$$

$$\text{solid after water} = 1.14 \text{ g}$$

- (i) The water was filtered and the filtrate evaporated to dryness. 2

Calculate the percentage of the total dissolved solids in the dam sample.

..... Total dissolved solids = 1.14 g .....

..... dam sample = 250 mL .....

..... ∴ the percentage of the total .....

..... dissolved solids is 0.466% .....

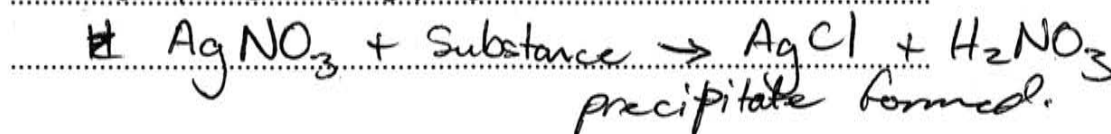
- (ii) It is suspected that the water in the dam has a high concentration of chloride ions. 2

Describe a chemical test that could be carried out on the water sample to determine the presence of chloride ions. Include an equation in your answer.

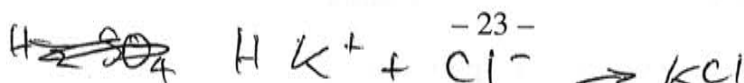
..... A chemical test such as adding a .....

..... substance ~~potassium~~ would form a precipitate .....

..... in the water .....



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## Question 31 (continued)

- (b) Name an ion other than chloride that commonly pollutes waterways, and identify its source and the effect of its presence on water quality.

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An ion such as ammonia,  $\text{NH}_4^+$  can contaminate waterways and is mostly sourced from plants, waste or degraded plants. The ammonia is then stored in the ground and later washed out by water from the rain. This contaminating water in waterways

End of Question 31