## 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

Solid = 0.24

Solid = 1.14

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

2

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

0.24g in 250mL	1.14 in 250ml
= 0.096 %	E-1800
	= 0.456%
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(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.

Call 
$$+2H_{2}O \rightarrow Ca(OH)_{2} + Cl_{2}$$
Silver nitrale could be added to
a sample. If prevent a yellow precipitate
will form:
$$Cacl_{2} + Ag(NO_{3}) \rightarrow Ca(NO_{3}) + Ag + Cl^{2}$$

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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.

Ca't comes from furtilizers which are often washing into water bookies. This added nutrient promotes algal growth and can lead to entrophication. The algae and uses up all dissolved oxygen, the dissallowing other organisms

End of Question 31

to survive and blocking all sunlight needed for growth as the sunlight is needed. Overall this has a very bad effect on water quality.

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