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 $1 \text{ litre} = 1 \text{ dm}^3 = 1000 \text{ cm}^3$.

This paper consists of 4 printed pages.

1	You	ате	provided	with	the	following	
	20.00	mary at	DIO I LUGUE	***	ATT A	TOTAL IT THE	•

- (a) Solution A which contains 4.90 g of sulphuric acid per dm³.
- (b) Solution B of monovalent metal X hydroxide. Solution B is made by dissolving 2.00 g of X hydroxide in distilled water and making up to 1000 cm³.
- (c) Methyl orange indicator.

Procedure:

Put the acid solution in the burette. Pipette 20 cm³ (or 25 cm³) of solution B into the titration flask. Add a few drops of methyl orange indicator. Titrate this base against solution A until an end point is reached. Record your titration results in a table as shown below.

Volume of pipette used w	as	cm ³		(01 ma
Titration	Pilot	1	2 110	3
Final reading (cm ³)				
Initial reading (cm ³)			56 (89 43)	
Volume used (cm ³)		2=.5	To storal and the	
				(07 ma
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2. Sample X is a simple salt containing ONE cation and ONE anion. Carry out the experiments described below carefully and record all your observations. Make appropriate inferences and identify the cation and anion present in sample X.

	Experiment	Observation	Inference
(i)	Appearance		
(ii)	Put a spatulaful of sample X in a test tube and heat		
(iii)	Add three drops of sodium hydroxide solution to the solid sample X. Warm and test the gas evolved		
(iv)	Put a spatulaful of sample X in a dry test-tube, add conc. H ₂ SO ₄ acid. Warm the mixture. Test for any gas evolved		
(v)	Put a spatulaful of sample X in a test tube, add conc. H ₂ SO ₄ acid and MnO ₂ . Warm the mixture. Test for any gas(es) evolved		
(vi)	Place a spatulaful of sample X in a test tube and add water until half test tube. Shake to dissolve		POISONOD
(vii)	To a portion of the solution from no. 6, add aqeous silver nitrate solution and then aqeous ammonia solution and shake		

CO	NCLUSION:					
The	cation is	and the anion is	<u> </u>			
(a)	Give balanced chemica	l equations for the read	tions taking place in	experiments	(ii) and (i	iv).
(b)	Write the confirmatory	test for the anion pres	ent in sample X.	C	25 marks)	

3. Sample Z contains ONE cation and ONE anion. Using systematic qualitative analysis procedures, carry out tests on Z and make appropriate observations and inferences and hence identify the cation and anion present in sample Z. Record your experiments, observations and inferences in tabular form as shown below.

Experiment	Observation	Inference
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		1994 (1994) (St. 129)

CONCLUSION:		
The cation present in Z is	and the anion is	
		(25 marks)