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Chemistry (0620 style): Acids, Bases and Salts

Topic Practice Paper: MARK SCHEME Maximum mark: 42

How to use this mark scheme

- A semicolon (;) separates marking points. Each marking point is worth 1 mark.
- A slash (/) separates alternative answers that are all acceptable.
- **allow** = also accept this answer. **do not allow** = this answer gets no credit.
- **and** in bold = both parts are needed for the mark.
- Mark the work first, then go back to your notes for any topic where you lost marks.

Question	Answer	Marks	Guidance
1(a)(i)	D	1	
1(a)(ii)	B	1	
1(b)	solution A: red ; solution D: yellow	2	allow orange-red for A
1(c)	blue	1	
1(d)(i)	proton / H^+ donor	1	
1(d)(ii)	proton / H^+ acceptor	1	
1(e)	hydrochloric acid is a strong acid **and** fully / completely dissociates (into ions) ; ethanoic acid is a weak acid **and** partially dissociates ; hydrochloric acid has a higher concentration of H^+ ions ;	3	allow ionises for dissociates mark 3 must be a comparison
1(f)	$H^+ + OH^- \rightarrow H_2O$; (aq) (aq) (l) ;	2	state symbols mark depends on correct equation
	Total	**12**	
2(a)(i)	zinc chloride ; hydrogen ;	2	either order
2(a)(ii)	test: lighted / burning splint ; result: (squeaky) pop ;	2	do **not** allow glowing splint
2(b)(i)	carbon dioxide	1	allow CO_2
2(b)(ii)	limewater ; turns milky / cloudy (white) ;	2	result mark depends on limewater
2(b)(iii)	2 (HNO_3) ; $Ca(NO_3)_2$;	2	
	Total	**9**	
3(a)	copper(II) sulfate **and** water	1	both needed for the mark

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Question	Answer	Marks	Guidance
3(b)	to make sure all the acid reacts / is used up	1	allow so no acid is left in the salt solution
3(c)(i)	copper(II) oxide	1	allow unreacted / excess copper(II) oxide
3(c)(ii)	copper(II) sulfate (solution)	1	
3(d)	heat / warm (the solution) to evaporate some of the water **or** until saturated / crystals form on a cold glass rod ; leave to cool **and** crystallise ; filter (off the crystals) **and** dry between filter papers / in a low oven ;	3	do **not** allow heat to dryness for mark 1
3(e)(i)	burette	1	
3(e)(ii)	sodium hydroxide / the alkali is soluble ; so excess cannot be removed by filtration / salt would be contaminated with alkali ;	2	
	Total	**10**	
4(a)	precipitation	1	
4(b)	any soluble barium salt, e.g. barium chloride / barium nitrate ; any soluble sulfate, e.g. sodium sulfate / dilute sulfuric acid ;	2	
4(c)	$Ba^{2+} + SO_4^{2-} \rightarrow BaSO_4$; (aq) (aq) (s) ;	2	state symbols mark depends on correct equation
4(d)	filter ; wash (residue) with distilled water **and** dry ;	2	
4(e)	sulfur dioxide: acidic ; calcium oxide: basic ; aluminium oxide: amphoteric ;	3	one mark per correct row two ticks in a row = 0 for that row
4(f)	reacts with both acids **and** bases / alkalis	1	
	Total	**11**	

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