

7. Equilibria

7.2 Brønsted–Lowry theory of acids and bases

Paper 2

Marking Scheme

Q1.

(c)(i)	proton / H ⁺ donor	1
(c)(ii)	ionic equation $\text{NH}_4^+ + \text{OH}^- \rightarrow \text{NH}_3 + \text{H}_2\text{O}$	1

Q2.

(b)(i)	M1: proton / H ⁺ donor	2
	M2: partially dissociates (in solution)	

Q3.

(d)(i)	M1 proton / H ⁺ donor M2 fully dissociates (in aqueous solution / water / solvent)	2
(d)(ii)	$\text{NH}_3 + \text{H}_2\text{O} \rightleftharpoons \text{NH}_4^+ + \text{OH}^-$	1
(d)(iii)	M1 correct basic shape extending to ~50 cm ³ with vertical portion of curve at 25 cm ³ M2 initial pH at 0–2 (based on idea that HCl is a strong acid) AND final pH at between 8–12 (based on idea that NH ₃ is a weak alkali)	2

Q4.

(c)(i)	<i>weak [acid]</i> partially dissociates/partially ionises (into H ⁺ ions/protons)	1
(c)(ii)	HS ⁻	1

Q5.

(a)	Accepts a proton / H^+ (ion)	1
-----	--------------------------------	---

Q6.

(c)(i)	proton / H^+ donor	1
(c)(ii)	acid HCl AND conjugate base Cl^-	1