

Numerical answers

$$1.c) Y = \frac{o^4}{o^4 + K_1^{-1} \phi(h)}, \text{ with } \phi(h) = \frac{(1 + K_2 h)}{1 + \frac{K_1}{K_1} K_2 h}$$

$$3.a.i) [\text{CO}_2] = 2.51 \cdot 10^{-4} \text{ Molar}, [\text{H}_2\text{CO}_3] = 4.3 \cdot 10^{-7} \text{ Molar}.$$

$$3.a.iii) [\text{HCO}_3^-] = 1.04 \cdot 10^{-5} \text{ Molar}, \text{pH} = 4.98, [\text{CO}_3^{2-}] = K_2.$$

$$3.b.ii) [\text{H}^+] = 3.98 \cdot 10^{-8} \text{ Molar}, [\text{HCO}_3^-] = 2.71 \cdot 10^{-3} \text{ Molar}, [\text{CO}_3^{2-}] = 3.82 \cdot 10^{-6}$$

Molar.