

CHEM 3530
Chapters 8
- Homework Answers

- 8.1 (a) $[\text{H}^+] = 9.6 \times 10^{-3} \text{ M}$, pH = 2.0
(b) $[\text{H}^+] = 4.0 \times 10^{-13} \text{ M}$, pH = 12.4
(a) $[\text{H}^+] = 5.32 \times 10^{-2} \text{ M}$, pH = 1.2

- 8.2 (a) pH = 9.14
(b) pH = 4.83

- 8.3 (a) pH = 2.0
(b) pH = 8.7
(c) pH = 2.6

- 8.4 (a) pH = 8.7
(b) pH = 2.8
(c) pH = 4.2

- 8.5 (a) Yes
(b) Yes
(c) No
(d) Yes
(e) Yes
(f) No

- 8.6 (a) pH = 2.52
(b) pH = 6.70
(c) pH = 11.19
(d) pH = 7.30
(e) pH = 7.18
(f) pH = 11.09

(g) $\frac{[\text{AsO}_4^{3-}]}{[\text{HAsO}_4^{2-}]} = 0.257$

(h) $\frac{[\text{HAsO}_4^{2-}]}{[\text{AsO}_4^{3-}]} = 3.89$

8.7 $[\text{HCOOH}] = 0.12 \text{ M}$, $[\text{HCOO}^-] = 0.38 \text{ M}$

8.8 (a) 100 mL of NaOH required , pH = 4.2

(b) 200 mL of NaOH required , pH = 8.8

8.9 (a) pH = 2.95

(b) $\frac{[\text{Ala}^-]}{[\text{Ala}]} = 10^{0.81} = 6.5$

(c) $[\text{Ala}^+] = 0.55 \text{ M}$, $[\text{Ala}] = 0.25 \text{ M}$

8.10 (a) pH = 2.18 , Avg. Charge = +1.5

(b) pH = 5.57 , Avg. Charge = +1.0

(c) pI = 9.74

(d) 2.5 equiv.

(e) Avg. Charge = -1/2

8.11 (a) $s = 1.17 \times 10^{-3}$

(b) $s = 1.26 \times 10^{-4}$

(c) $s = 1.6 \times 10^{-7}$