CHAPTER 10 BLM ANSWER KEY

BLM 10-1: Conductivity of Solutions

(a)

Substance	LED Indicator	Conductivity of solution
water	does not light	non-conductor
hydrochloric acid	glows brightly	good conductor
acetic acid	dim light	poor conductor
aqueous sodium hydroxide	glows brightly	good conductor
aqueous ammonia	very dim flickering light	poor conductor

(b) Strong acids and bases are good conductors; weak acids and bases are poor conductors; water is a non-conductor.

(c) Strong acids and bases are 100% dissociated so high [ions]. Weak acids and bases are only approximately 1% dissociated, so very few ions.

(d) Necessary to thoroughly rinse electrodes after each use to prevent contamination of next solution.

(e) Water was used as a control.

BLM 10-2: Acid-Base Theories

1. (a) Brønsted-Lowry **(b)** Arrhenius
(c) Brønsted-Lowry **(d)** Arrhenius or Brønsted-Lowry
(e) Brønsted-Lowry **(f)** Arrhenius
(g) Arrhenius **(h)** Brønsted-Lowry

2. Lewis theory of acids and bases: proposed in 1923 by G.N. Lewis an American chemist. An acid is an electron pair acceptor, a base is an electron pair donor. Lewis acids include H^+ and other cations (e.g. Al^{3+}) as well as neutral molecules having vacant valence orbitals.

BLM 10-3: pH Calculations

1. (a) 11.9, basic **(b)** 6.3×10^{-5}, acidic
(c) blood, 7.4 **(d)** pure water, neutral

2. (a) $[OH^-]$ **(b)** $[H_3O^+]$
(c) $[OH^-]$ **(d)** They are equal.

3. (a) weak base **(b)** weak acid
(c) weak base **(d)** neutral

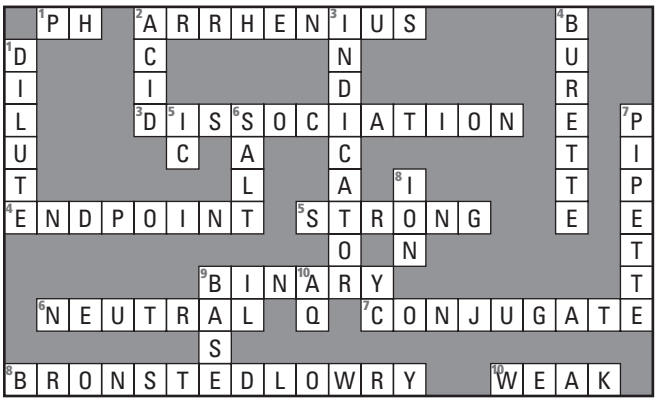
4. (a) 1.0×10^0, pH = 0 **(b)** strong acid

BLM 10-4: Botany and Acidity

(a) Blue in acid, pink in basic

(b) acid soil - use acid soil mix or peat moss or plant near conifers. Basic soil - add lime, CaO.

BLM 10-5: Crossword Puzzle



BLM 10-6: Titration Checklist

To be perfect, a student should check Yes ✓ for a,c,d,e,f,i,j,k,l. and No ✓ for b,g,and h.

BLM 10-7: Chapter 10 Test

1. b	**7.** a	**13.** c	**19.** b	**25.** d
2. c	**8.** b	**14.** d	**20.** c	**26.** b
3. a	**9.** a	**15.** c	**21.** c	**27.** b
4. d	**10.** c	**16.** c	**22.** b	**28.** d
5. d	**11.** a	**17.** a	**23.** a	**29.** a
6. a	**12.** b	**18.** d	**24.** d	**30.** d