1장 인쇄오류 해답

19. The carbon-carbon bonds form as a result of sp^3—sp^3 overlap.
The carbon-hydrogen bonds form as a result of sp^3—s overlap.

28. **a. longer:** **1.** C—I **2.** C—Cl **3.** H—Cl
b. stronger: **1.** C—Cl **2.** C—C **3.** H—F

2장 인쇄오류 해답

1. CO_2 and CCl_4

2. **a.** $HCl + NH_3 \rightleftharpoons Cl^- + {}^+NH_4$

b. $H_2O + {}^-NH_2 \rightleftharpoons HO^- + NH_3$

3. The conjugate acid is obtained by adding an H^+ to the species.

a. (1) ${}^+NH_4$ **(2)** HCl **(3)** H_2O **(4)** H_3O^+

The conjugate base is obtained by removing an H^+ from the species.

b. (1) ${}^-NH_2$ **(2)** Br^- **(3)** NO_3^- **(4)** HO^-

4. **a.** The lower the pK_a, the stronger the acid, so the compound with pK_a = 5.2 is the stronger acid.
b. The greater the dissociation constant, the stronger the acid, so the compound with a dissociation constant = 3.4×10^{-3} is the stronger acid.

11. **a.** CH_3COO^- is the stronger base.
Because CH_3COOH is the weaker acid, it has the stronger conjugate base.

b. ${}^-NH_2$ is the stronger base.
Because NH_3 is the weaker acid, it has the stronger conjugate base.

c. H_2O is the stronger base.
Because H_3O^+ is the weaker acid, it has the stronger conjugate base.

22. **a.** oxygen **b.** H_2S **c.** CH_3SH

24. Remember that the stronger the acid, the weaker (or more stable) its conjugate base,

a. Because HI is the strongest acid, I^- is the most stable (weakest) base.
b. Because HF is the weakest acid, F^- is the least stable base.
c. Because HF is the weakest acid, F^- is the strongest base.

26.

a. $CH_3OCH_2CH_2OH$ because its conjugate base has its negative charge stabilized by electron withdrawal by the CH_3O group.

b. $CH_3CH_2CH_2\overset{+}{O}H_2$ because oxygen is more electronegative than nitrogen.

c. $CH_3CH_2OCH_2CH_2OH$ because the electron-withdrawing oxygen is closer to the OH group.

d. $CH_3CH_2C(=O)OH$ because the electron-withdrawing C=O is closer to the OH group.

31. **a.** CH_3COO^- **c.** H_2O **e.** $\overset{+}{N}H_4$ **g.** NO_2^-

b. $CH_3CH_2\overset{+}{N}H_3$ **d.** Br^- **f.** $HC\equiv N$ **h.** NO_3^-

3장 인쇄오류 해답

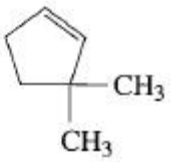
14. menthol = $C_{10}H_{20}O$ terpin hydrate = $C_{10}H_{20}O_2$

4장 인쇄오류 해답

32. **b.** $2^8 = 256$

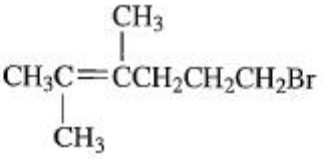
5장 인쇄오류 해답

2. **a.**



c. $CH_3CH_2OCH=CH_2$

b.



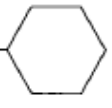
d. $CH_2=CHCH_2OH$

6장 인쇄오류 해답

15. **a.** A racemic mixture of (*R*)-malate and (*S*)-malate would be obtained. (A product with one asymmetric center would be formed from a reactant with no asymmetric centers.)

b. A racemic mixture of (*R*)-malate and (*S*)-malate would again be obtained. In the absence of an enzyme, the reactions are neither stereoselective (part **a**) nor stereospecific (part **b**).

24. **a.** $CH_3C\equiv CH$ **b.** $CH_3CH_2C\equiv CCH_2CH_3$ **c** $HC\equiv C$—



8장 인쇄오류 해답

8. **a.** $CH_3CH_2Br + HO^-$

b. $CH_3CH_2Cl + CH_3O^-$

11. These are all S_N2 reactions.

a. $CH_3CH_2OCH_2CH_2CH_3$

b. $CH_3CH_2C{\equiv}CCH_3$

c. $CH_3CH_2\overset{+}{N}(CH_3)_3\ Br^-$

d. $CH_3CH_2SCH_2CH_3$

10장 인쇄오류 해답

5. **a.** C_5H_{12}

b. $C_6H_{12}O$.

c. $C_5H_{10}O_2$.

d. $C_6H_{12}NO$.