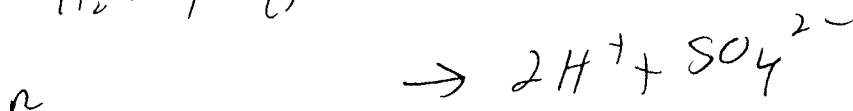
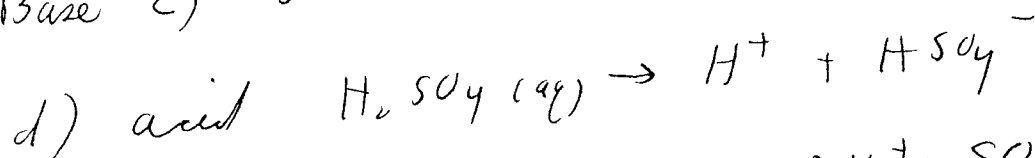
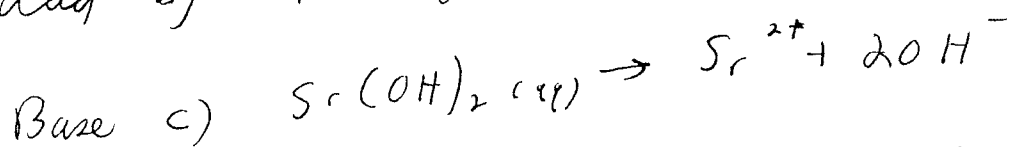
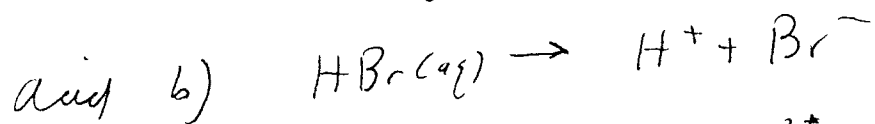
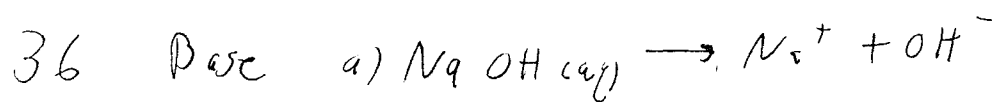


HW 1
CHEM 1002

①



62) a) $[\text{H}_3\text{O}^+] \approx 0.125$

b) $\approx 1.25 \text{ M}$

c) 2.77 M

d) 0.95 M

- 68) a) basic
 b) basic
 c) acidic
 d) basic

70) a) $[\text{OH}^-] = \frac{10^{-14}}{1.3 \times 10^{-3}} = 7.7 \times 10^{-12} \text{ M}$

b) $[\text{OH}^-] = \frac{10^{-14}}{9.1 \times 10^{-12}} = 1.1 \times 10^{-3} \text{ M}$

c) $[\text{OH}^-] = \frac{10^{-14}}{5.2 \times 10^{-4}} = 1.9 \times 10^{-11} \text{ M}$

d) $[\text{OH}^-] = \frac{10^{-14}}{6.1 \times 10^{-9}} = 1.7 \times 10^{-6} \text{ M}$

76) a) 9.6

b) 1.1

c) 1.2

d) 4.5

77) $[\text{H}_3\text{O}^+] =$

a) $10^{-1.76} = 1.74 \times 10^{-2} \text{ M}$

b) $10^{-3.88} = 1.32 \times 10^{-4} \text{ M}$

c) $10^{-8.43} = 3.72 \times 10^{-9} \text{ M}$

d) $10^{-12.32} = 4.786 \times 10^{-13} \text{ M}$

$$\text{# moles} = 1.88 \times 10^{-2} \text{ L} \times 1.88 \text{ M} = 1.88 \text{ mL}$$

Volume of KOH & acetic acid equal # moles OH⁻

$$= \frac{1000}{25} \times 0.150 \text{ M} = 3.75 \times 10^{-3} \text{ moles}$$

(100) # moles H⁺ to be neutralized

- 6) pH = 14 - 5.5 = 8.5 basic
 c) pH = 14 - 0.55 = 13.45 basic
 d) pH = 14 - 7.98 = 6.02 acidic

90) a) pH = 14 - 12.5 = 1.5 basic acidic

- a) $\text{pH} = 14 - (14 - 1.82) = 1.82$
 b) $\text{pH} = 14 - (14 - 13.28) = 0.19 \text{ M}$
 c) $\text{pH} = 14 - (14 - 8.29) = 1.95 \times 10^{-8} \text{ M}$
 d) $\text{pH} = 14 - (14 - 2.32) = 2.09 \times 10^{-12} \text{ M}$

(82) [OH⁻] = 0.403