

Practice Problems (on last page of notes packet)

1. $[H^+] = 8.75 \times 10^{-5} M$
acid $[H^+] > 10^{-7} M$

$pH = -\log 8.75 \times 10^{-5} = 4.058$

$[OH^-] = \frac{K_w}{[H^+]} = \frac{1 \times 10^{-14}}{8.75 \times 10^{-5}} = 1.14 \times 10^{-10} M$

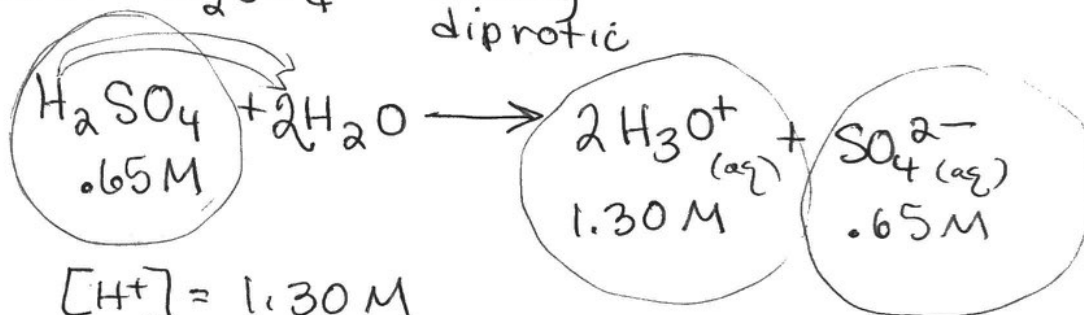
$pOH = -\log 1.14 \times 10^{-10} = 9.943$

$pOH + pH = 14$

$9.943 + 4.058 = 14.001$

*

2. $.65 M H_2SO_4$ strong diprotic



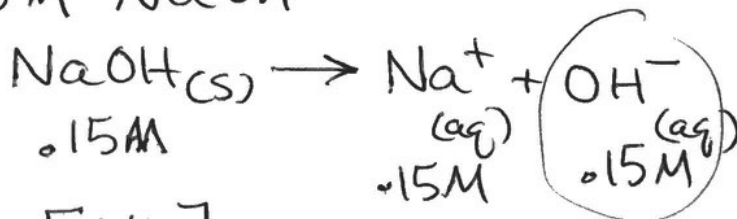
$[H^+] = 1.30 M$

$pH = -\log 1.30 = -.114$

$pOH = 14 - (-.114) = 14.114$

$[OH^-] = \frac{K_w}{[H^+]} = \frac{1 \times 10^{-14}}{1.30} = 7.69 \times 10^{-15} M$
acidic

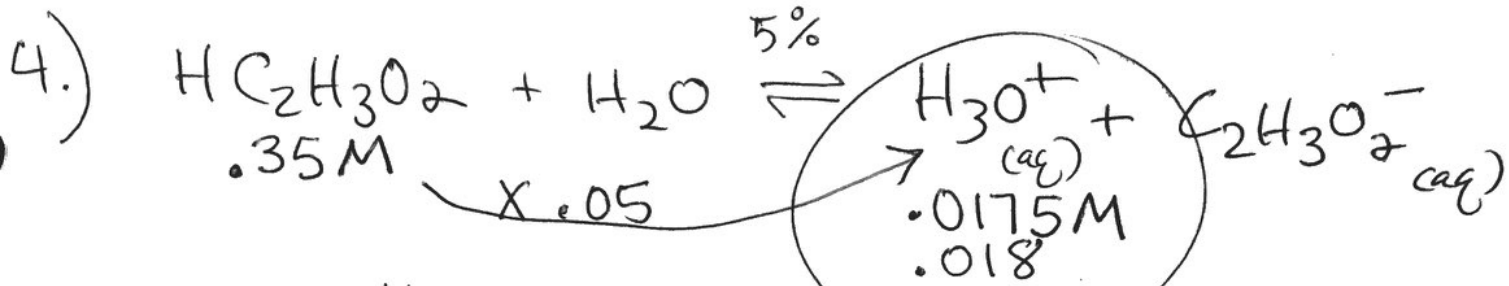
3. $.15 M NaOH$



$[OH^-] = .15 M$

$[H^+] = \frac{K_w}{[OH^-]} = \frac{1 \times 10^{-14}}{.15} = 6.7 \times 10^{-14} M$

$pH = -\log 6.7 \times 10^{-14} = 13.17$



$$\text{pH} = -\log .0175$$

$$-\log .018 = 1.74$$

$$[\text{H}^+] = .018\text{M}$$

$$\text{pOH} = 14 - 1.74 = 12.26$$

$$[\text{OH}^-] = \frac{1 \times 10^{-14}}{.018} = 5.6 \times 10^{-13}\text{M}$$

anti log $([\text{OH}^-] = 10^{-12.26} = 5.5 \times 10^{-13}\text{M})$