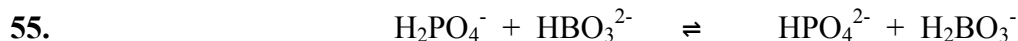
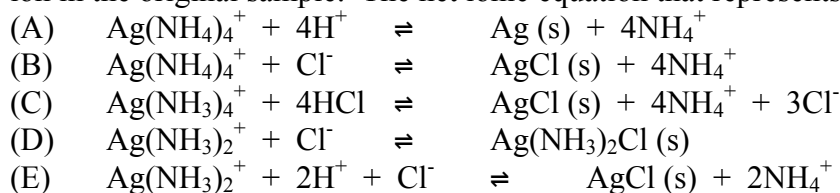


**AP MULTIPLE CHOICE QUESTIONS**  
**CH. 16, SET 2**

1989

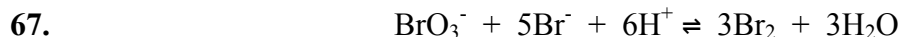
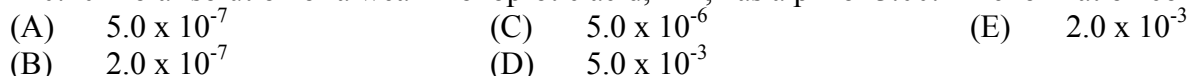
52. The test for the presence of  $\text{Ag}^+$  in an unknown solution involves the treatment of the silver-ammonia complex with dilute hydrochloric acid. The appearance of a white precipitate at this point indicates the presence of silver ion in the original sample. The net ionic equation that represents this test is



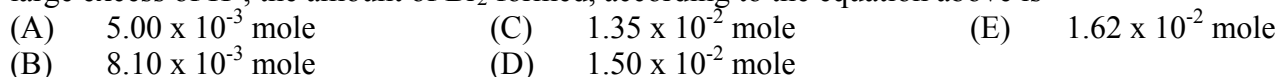
The equilibrium constant for the reaction represented by the equation above is greater than 1.0. Which of the following gives the correct relative strengths of the acids and bases in the reaction?

	Acids	Bases
(A)	$\text{H}_2\text{PO}_4^- > \text{H}_2\text{BO}_3^-$	$\text{HBO}_3^{2-} > \text{HPO}_4^{2-}$
(B)	$\text{H}_2\text{BO}_3^- > \text{H}_2\text{PO}_4^-$	$\text{HBO}_3^{2-} > \text{HPO}_4^{2-}$
(C)	$\text{H}_2\text{PO}_4^- > \text{H}_2\text{BO}_3^-$	$\text{HPO}_4^{2-} > \text{HBO}_3^{2-}$
(D)	$\text{H}_2\text{BO}_3^- > \text{H}_2\text{PO}_4^-$	$\text{HPO}_4^{2-} > \text{HBO}_3^{2-}$
(E)	$\text{H}_2\text{PO}_4^- = \text{H}_2\text{BO}_3^-$	$\text{HPO}_4^{2-} > \text{HBO}_3^{2-}$

56. A 0.20-molar solution of a weak monoprotic acid, HA, has a pH of 3.00. The ionization constant of this acid is:



If 25.0 milliliters of 0.200 molar  $\text{BrO}_3^-$  is mixed with 30.0 milliliters of 0.450 molar  $\text{Br}^-$  solution that contains a large excess of  $\text{H}^+$ , the amount of  $\text{Br}_2$  formed, according to the equation above is

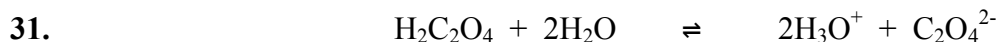
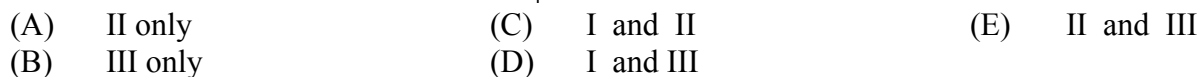


1994

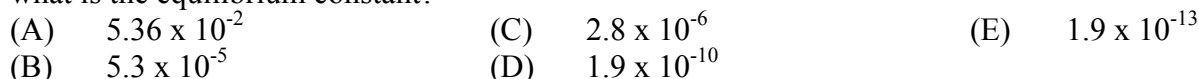


In the equilibrium represented above, the species that act as bases include which of the following?

- I.  $\text{HSO}_4^-$   
 II.  $\text{H}_2\text{O}$   
 III.  $\text{SO}_4^{2-}$



Oxalic acid,  $\text{H}_2\text{C}_2\text{O}_4$ , is a diprotic acid with  $k_1 = 5.36 \times 10^{-2}$  and  $k_2 = 5.3 \times 10^{-5}$ . For the reaction above, what is the equilibrium constant?



61. A 1-molar solution of which of the following salts has the highest pH?

