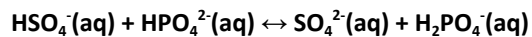


Acid Unit: Conjugate Pairs

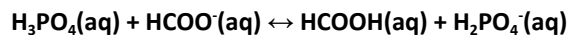
1. Use the following equilibrium to answer the question below.



In this equilibrium, the strongest acid and its conjugate base are _____ and _____

a	$\text{H}_2\text{PO}_4^-(\text{aq})$	$\text{HPO}_4^{2-}(\text{aq})$
b	$\text{HSO}_4^-(\text{aq})$	$\text{SO}_4^{2-}(\text{aq})$
c	$\text{HSO}_4^-(\text{aq})$	$\text{HPO}_4^{2-}(\text{aq})$
d	$\text{SO}_4^{2-}(\text{aq})$	$\text{H}_2\text{PO}_4^-(\text{aq})$

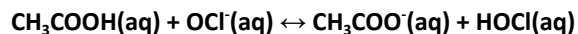
2. Use the following equilibrium to answer the question below.



In this equilibrium, the strongest base and its conjugate acid are _____ and _____

a	$\text{H}_2\text{PO}_4^-(\text{aq})$	$\text{H}_3\text{PO}_4(\text{aq})$
b	$\text{HCOO}^-(\text{aq})$	$\text{HCOOH}(\text{aq})$
c	$\text{HCOO}^-(\text{aq})$	$\text{H}_3\text{PO}_4(\text{aq})$
d	$\text{HCOOH}(\text{aq})$	$\text{H}_2\text{PO}_4^-(\text{aq})$

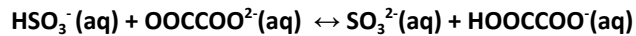
3. Use the following equilibrium to answer the question below.



In this equilibrium, the strongest acid and the strongest base are _____ and _____

a	$\text{HOCl}(\text{aq})$	$\text{CH}_3\text{COOH}(\text{aq})$
b	$\text{HOCl}(\text{aq})$	$\text{CH}_3\text{COO}^-(\text{aq})$
c	$\text{OCl}^-(\text{aq})$	$\text{CH}_3\text{COO}^-(\text{aq})$
d	$\text{CH}_3\text{COOH}(\text{aq})$	$\text{OCl}^-(\text{aq})$

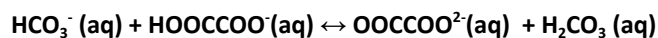
4. Use the following equilibrium to answer the question below.



In this equilibrium, the two chemicals that act as bases are _____ and _____

a	$\text{SO}_3^{2-}(\text{aq})$	$\text{OOC}^-\text{COO}^{2-}(\text{aq})$
b	$\text{HSO}_3^-(\text{aq})$	$\text{HOOC}^-\text{COO}^-(\text{aq})$
c	$\text{OOC}^-\text{COO}^{2-}(\text{aq})$	$\text{HOOC}^-\text{COO}^-(\text{aq})$
d	$\text{SO}_3^{2-}(\text{aq})$	$\text{HSO}_3^-(\text{aq})$

5. Use the following equilibrium to answer the question below.



In this equilibrium, the two chemicals that act as acids are _____ and _____

a	$\text{HCO}_3^- (\text{aq})$	$\text{OCCCOO}^{2-} (\text{aq})$
b	$\text{HOCCOO}^- (\text{aq})$	$\text{H}_2\text{CO}_3 (\text{aq})$
c	$\text{HCO}_3^- (\text{aq})$	$\text{H}_2\text{CO}_3 (\text{aq})$
d	$\text{H}_2\text{CO}_3 (\text{aq})$	$\text{OCCCOO}^{2-} (\text{aq})$

6. Which ion is **LEAST capable** of acting as both an acid and or a base in an aqueous solution?

a	$\text{HOCCOO}^- (\text{aq})$
b	$\text{HCO}_3^- (\text{aq})$
c	$\text{H}_3\text{O}^+ (\text{aq})$
d	$\text{H}_2\text{PO}_4^- (\text{aq})$

7. Which ion in the list below is **the strongest acid**?

a	$\text{H}_2\text{S} (\text{aq})$
b	$\text{HCO}_3^- (\text{aq})$
c	$\text{HSO}_4^- (\text{aq})$
d	$\text{CH}_3\text{COO}^- (\text{aq})$

8. Which ion in the list below is **the strongest base**?

a	$\text{NO}_3^- (\text{aq})$
b	$\text{OCCCOO}^{2-} (\text{aq})$
c	$\text{CH}_3\text{COO}^- (\text{aq})$
d	$\text{NH}_3 (\text{aq})$

9. Numerical response question

--	--	--	--

Left justify your answer in the boxes provided.

Write the equation that represents the ionization of phosphoric acid. Put the answer in ascending order

_____ + _____ $\leftrightarrow$ _____ + _____

1. H_3PO_4
2. H^+
3. H_2O
4. PO_4^{3-}
5. H_3O^+
6. H_2PO_4^-

Solutions:

1. B
2. B
3. D
4. A
5. B
6. C
7. C
8. D
9. 1356