

Acids and Bases Problems

1. Rank the following solutions in order of increasing acidity (from lowest to highest):

Solution A with pH = 6.50

Solution C with $[\text{OH}^-] = 6.0 \times 10^{-10} \text{ M}$

Solution B with $[\text{H}_3\text{O}^+] = 3.5 \times 10^{-5} \text{ M}$

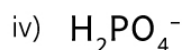
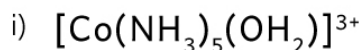
Solution D with pH = 5.85

___ < ___ < ___ < ___

2. Complete the following table.

Acid	Conjugate Base
HS^-	
	ClO_4^-
H_3PO_4	
	HClO_3^-

3. Write the acid-base reactions with water for each of the following acids. Label the acid, base, conjugate acid, and conjugate base.



Acids and Bases Problems

Answers

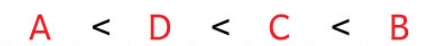
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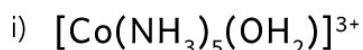
Solution D with pH = 5.85



2. Complete the following table.

Acid	Conjugate Base
HS^-	S^{2-}
HClO_4	ClO_4^-
H_3PO_4	H_2PO_4^-
H_2ClO_3	HClO_3^-

3. Write the acid-base reactions with water for each of the following acids. Label the acid, base, conjugate acid, and conjugate base.



Acid: $[\text{Co}(\text{NH}_3)_5(\text{OH}_2)]^{3+}$

Base: H_2O

Conjugate acid: H_3O^+

Conjugate base: $[\text{Co}(\text{NH}_3)_5(\text{OH})]^{2+}$



Acid: HSO_4^-

Base: H_2O

Conjugate acid: H_3O^+

Conjugate base: SO_4^{2-}



Acid: CH_3OH

Base: H_2O

Conjugate acid: H_3O^+

Conjugate base: CH_3O^-



Acid: H_2PO_4^-

Base: H_2O

Conjugate acid: H_3O^+

Conjugate base: HPO_4^{2-}