

## Acid Base Chemistry

### 1. Foundation knowledge

a. Acids and bases

b. Ions in solution

c. Reactive and unreactive ions

### 2. The pH scale

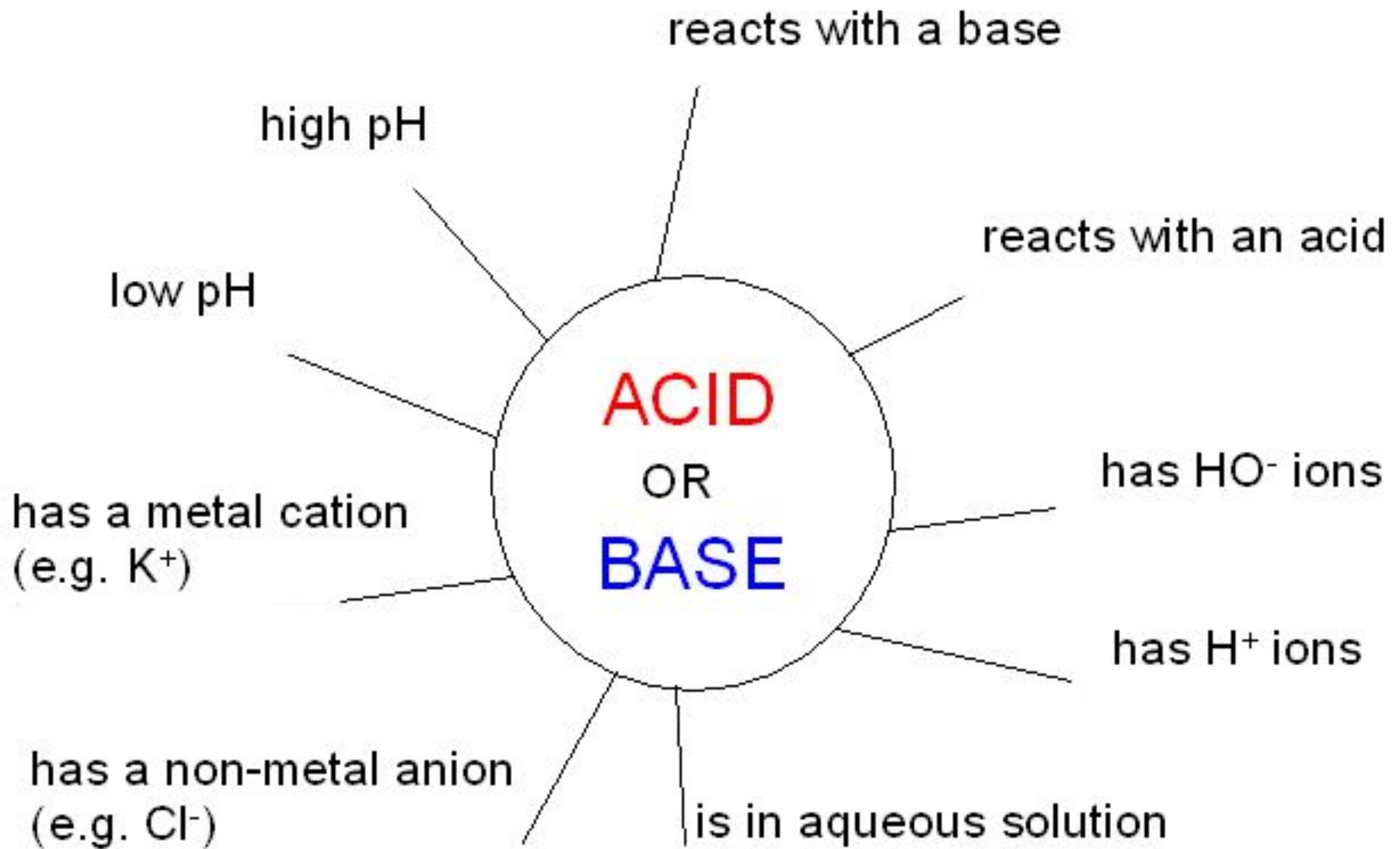
### 3. The pH of water

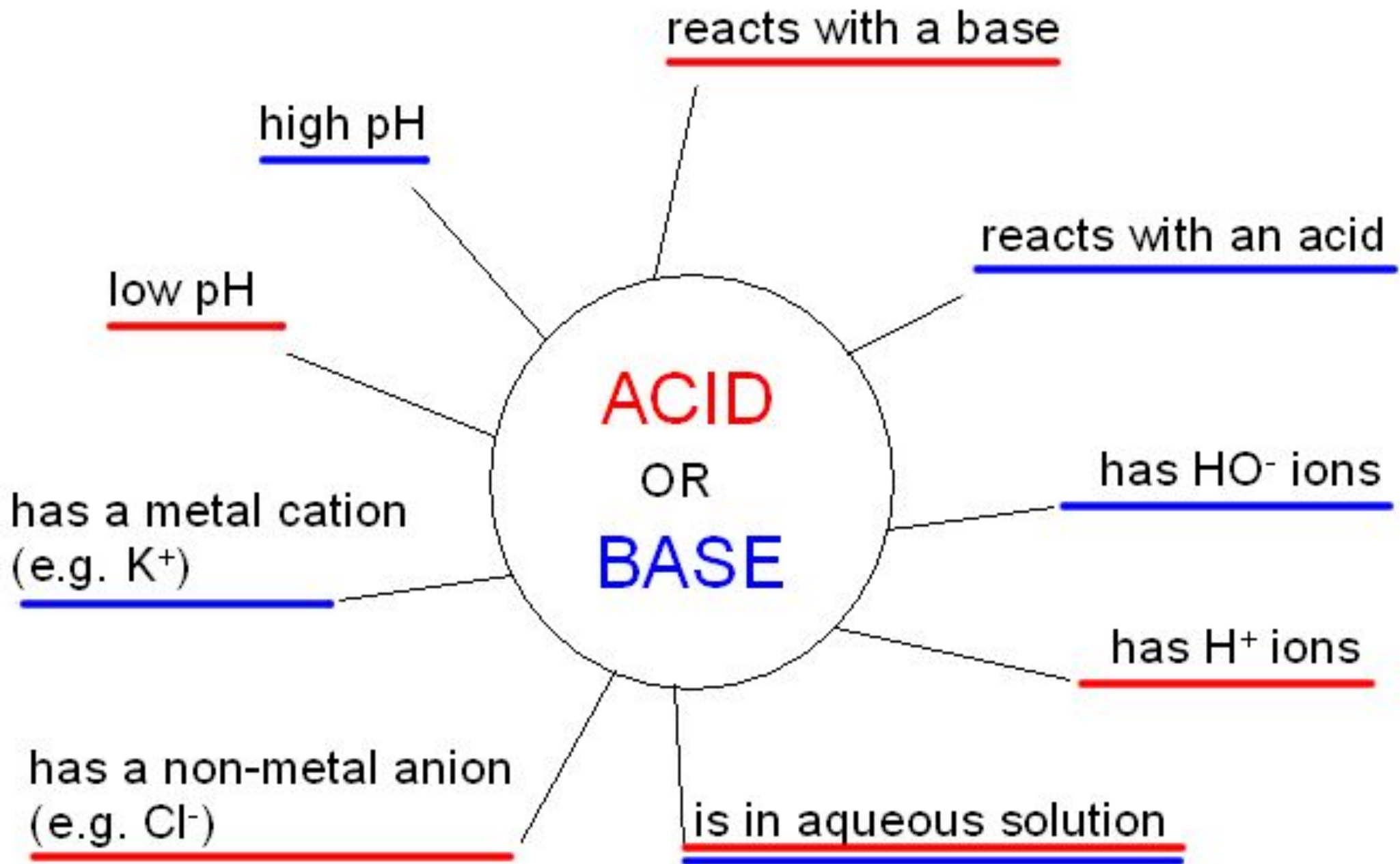
### 4. Acids

### 5. Bases

### 6. Acid base titrations

### 7. Relative acidity and basicity – competition for H<sup>+</sup>



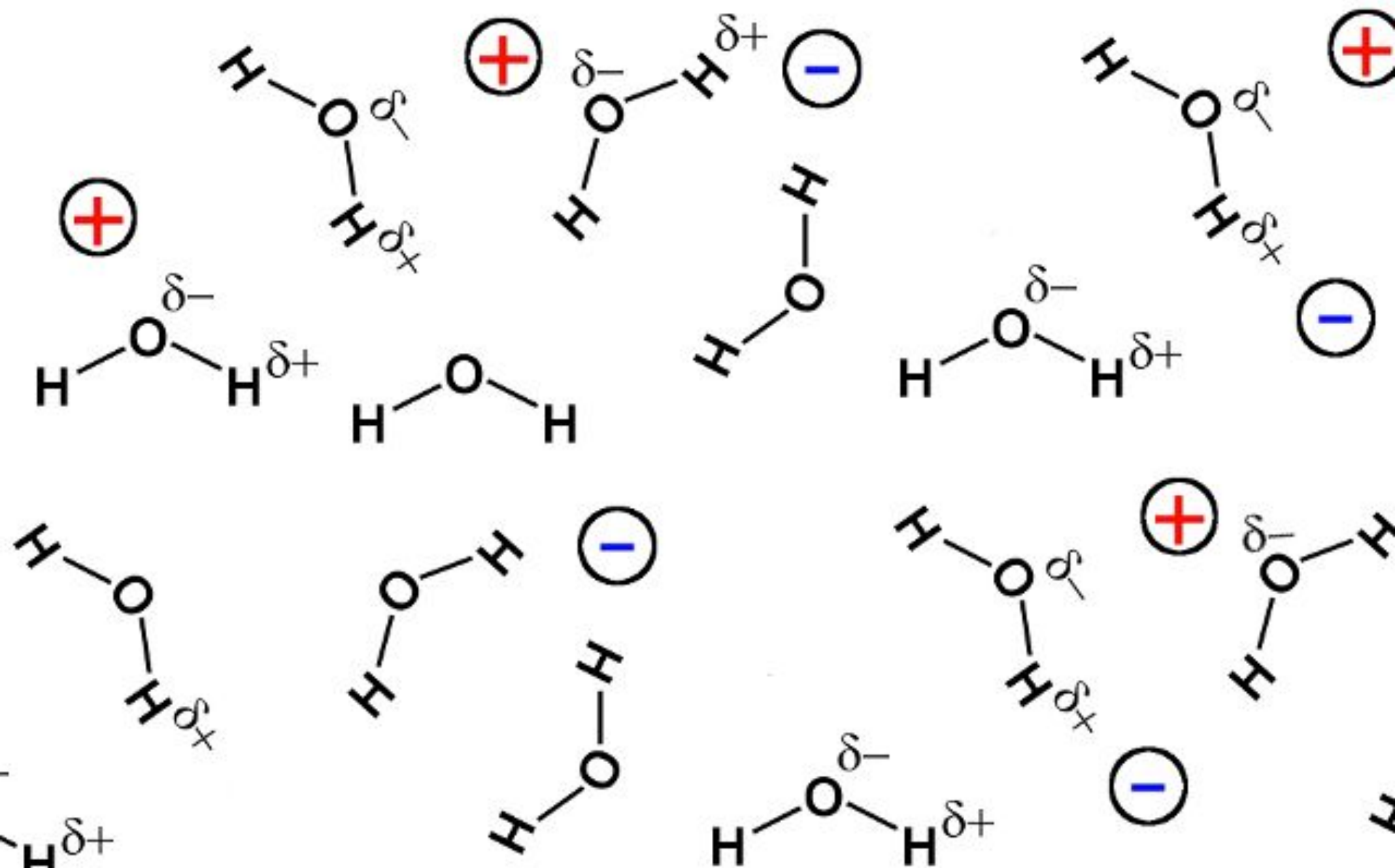


# IONIC SOLUTIONS

Why do ions go into solution?

Classifying ions as acidic, basic or neutral

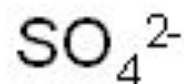
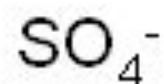
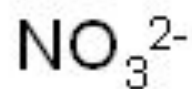
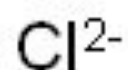
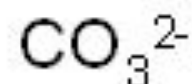
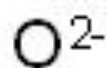
# Why do ions go into solution?



## Classify ions as acidic, basic or neutral

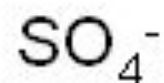
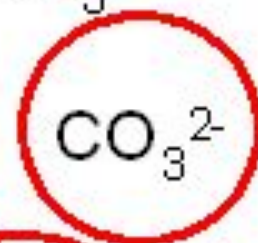
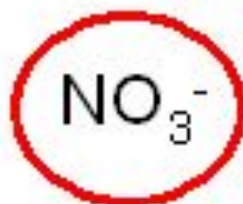
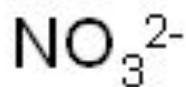
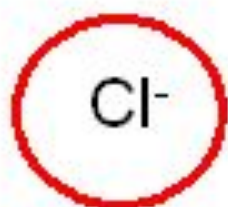
|                            | +ve   | -ve  |
|----------------------------|---|--|
| neutral                    | $\text{Na}^+$<br>$\text{K}^+$<br>$\text{Mg}^{2+}$<br>$\text{Ca}^{2+}$ | $\text{Cl}^-$<br>$\text{SO}_4^{2-}$<br>$\text{NO}_3^-$ |
| <del>acidic</del><br>basic | $\text{H}^+$  | $\text{HO}^-$  |

Which are the correct formulae for these pairs of anions?



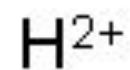
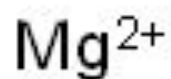
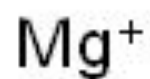
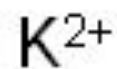
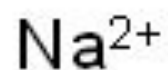


Which are the correct formulae for these pairs of anions?

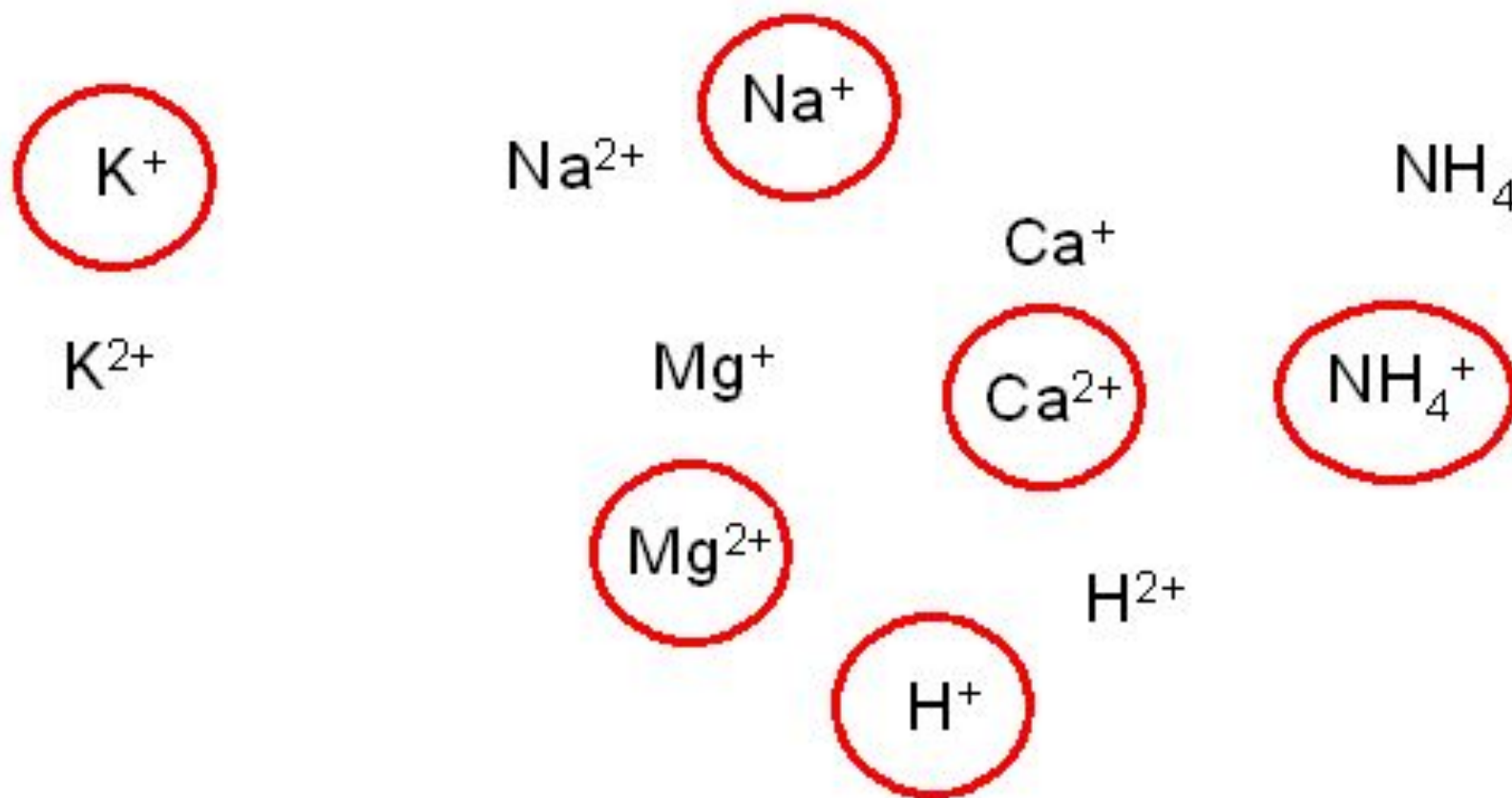




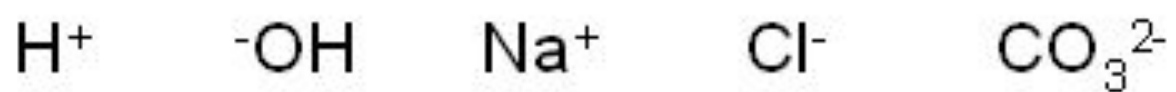
Which are the correct formulae for these cations?



Which are the correct formulae for these cations?

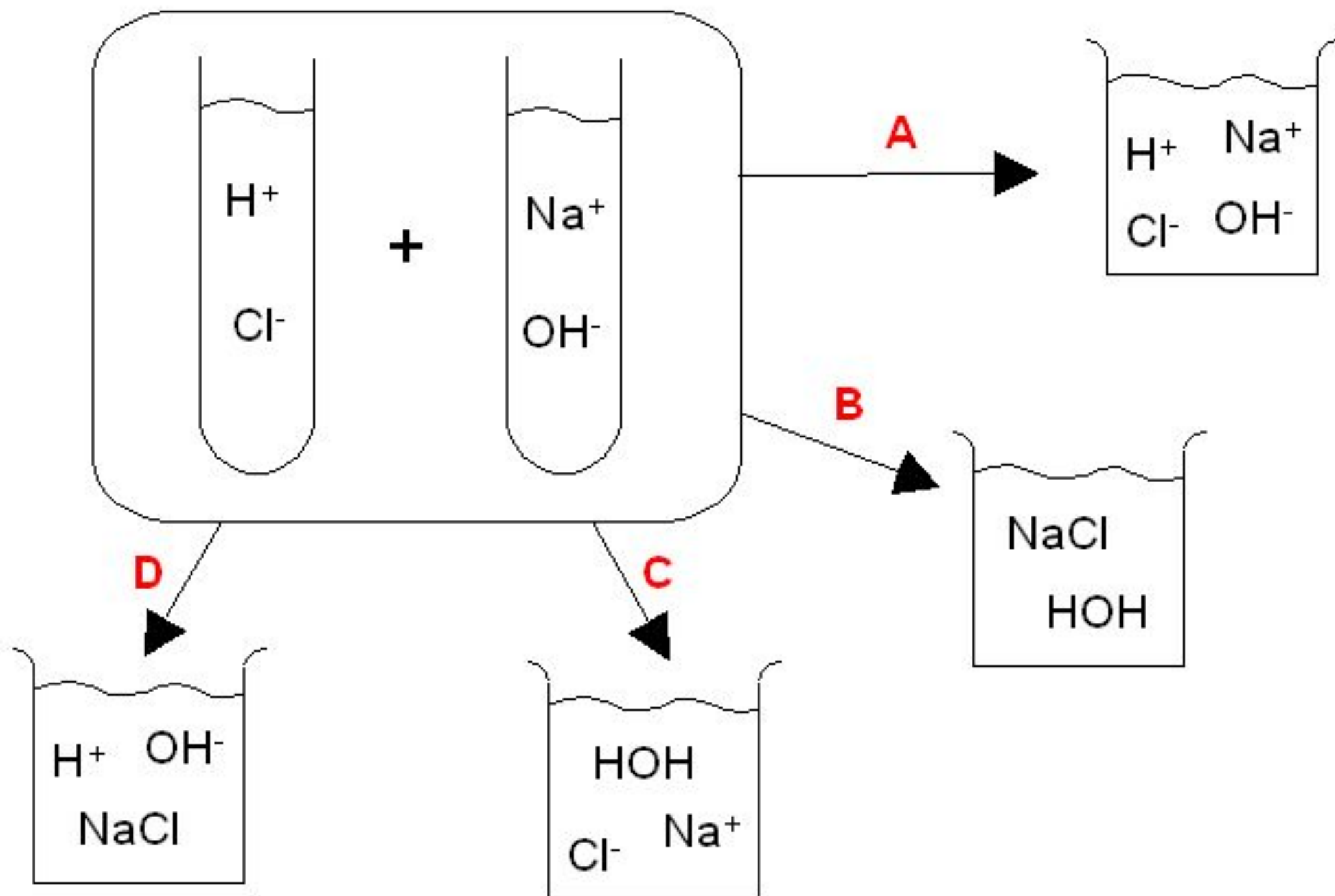


Classify the following ions as neutral, acidic or basic:

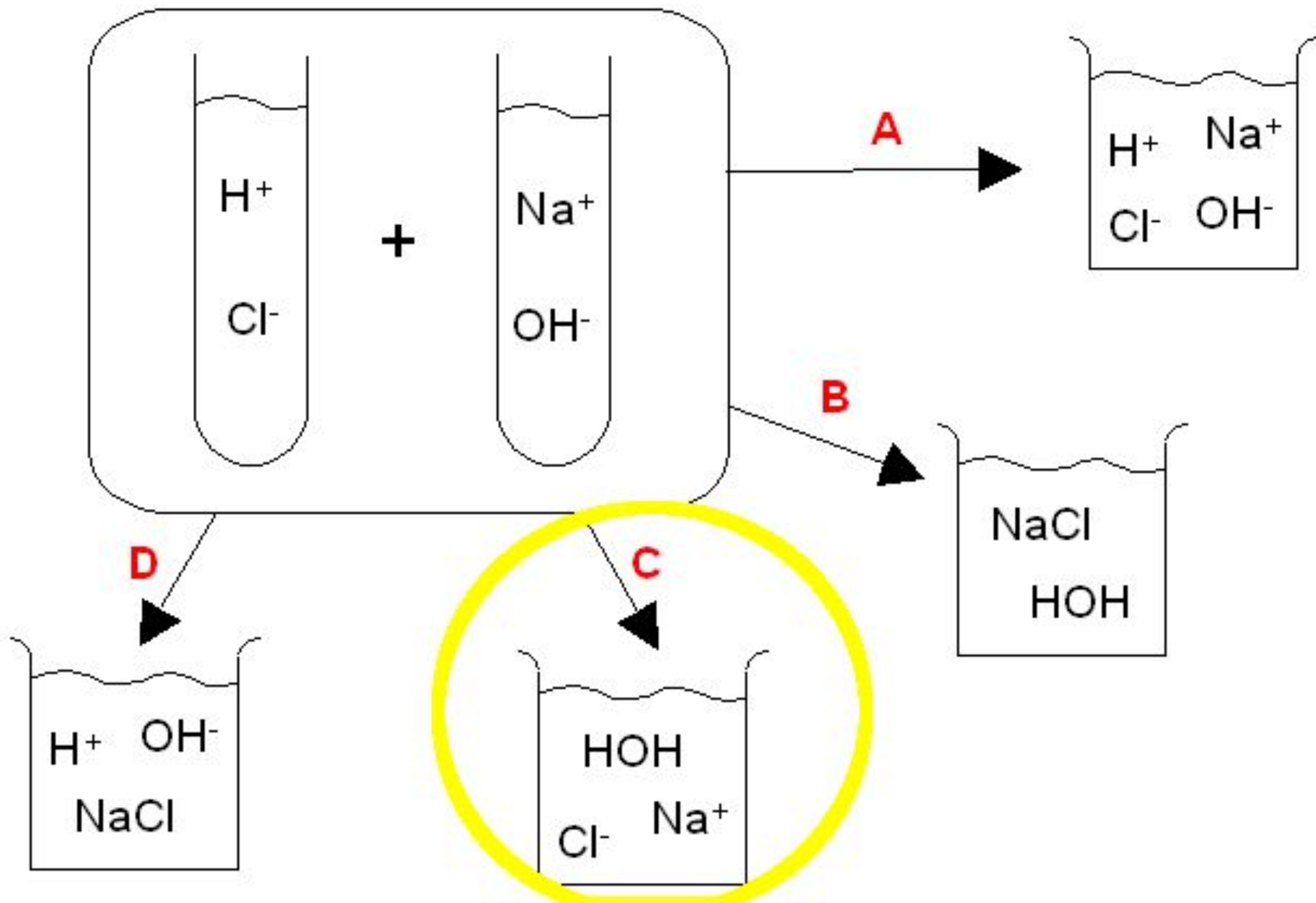


|         | +ve ions  | -ve ions   |
|---------|---|--|
| NEUTRAL | $\text{Na}^+$<br>$\text{Mg}^{2+}$<br>$\text{K}^+$ | $\text{NO}_3^-$<br>$\text{Cl}^-$<br>$\text{SO}_4^{2-}$ |
| ACIDIC  | $\text{H}^+$                                      |  |
| BASIC   |   | $\text{CO}_3^{2-}$<br>$\text{-OH}$                     |

Which occurs during a neutralisation reaction?

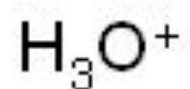
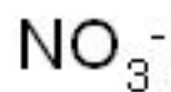
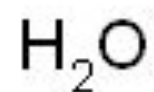


Which occurs during a neutralisation reaction?



Which of the following do you find in a solution of  $\text{HNO}_3(\text{aq})$ ?

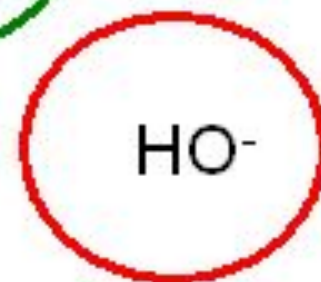
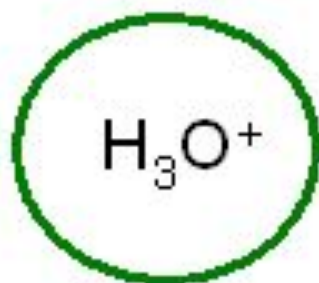
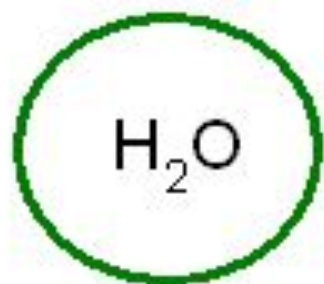
**YES**   **NO**





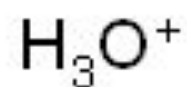
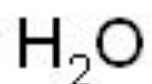
Which of the following do you find in a solution of  $\text{HNO}_3(\text{aq})$ ?

YES NO



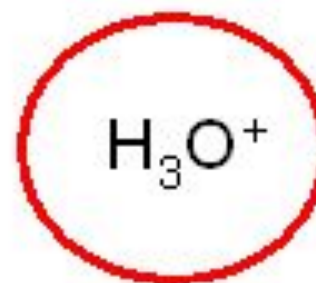
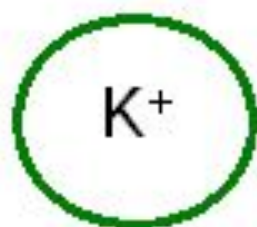
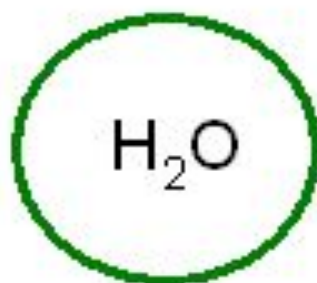
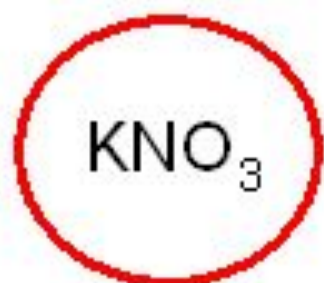
Which of the following do you find in a solution of  $\text{KNO}_3(\text{aq})$ ?

**YES**   **NO**



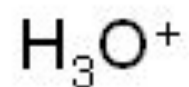
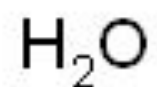
Which of the following do you find in a solution of  $\text{KNO}_3(\text{aq})$ ?

YES NO



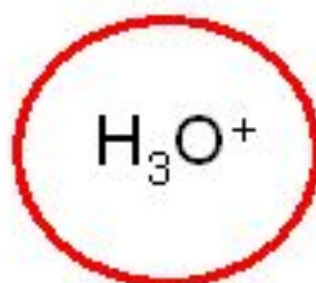
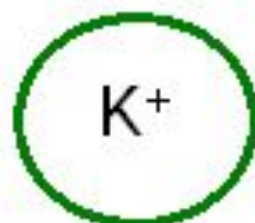
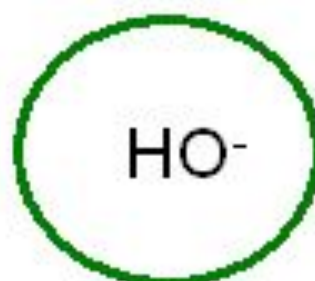
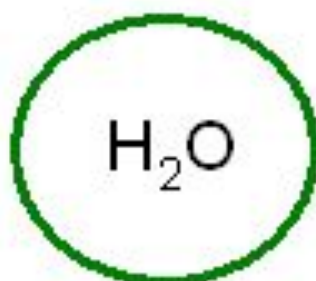
Which of the following do you find in a solution of KOH(aq)?

**YES**   **NO**



Which of the following do you find in a solution of KOH(aq)?

YES NO



Classify the following solutions into

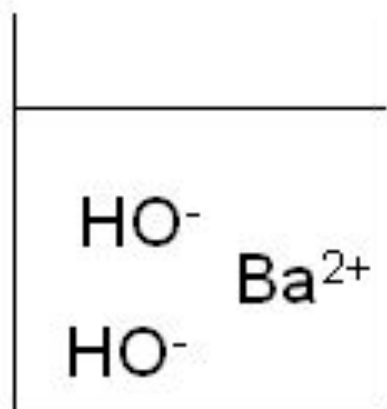
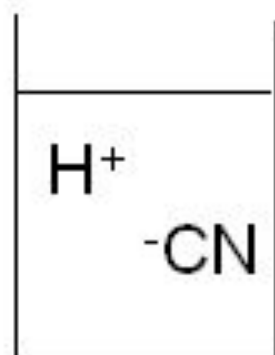
acid

base

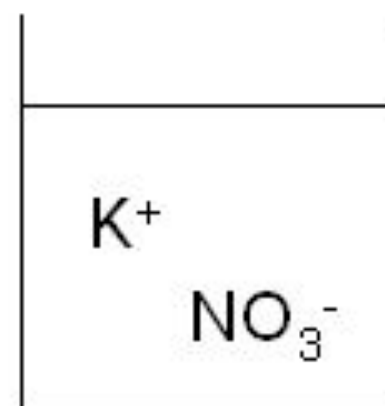
neutral

(3 of each)

$\text{MgCl}_2(\text{aq})$



sulphuric acid



$\text{H}_2\text{O}$   $\text{NH}_3(\text{aq})$

$\text{HNO}_3(\text{aq})$

sodium carbonate solution

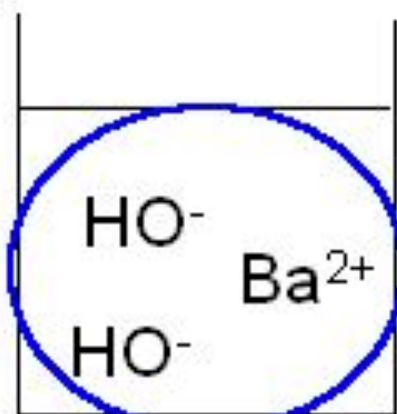
Classify the following solutions into

acid

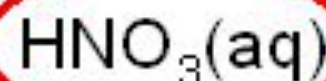
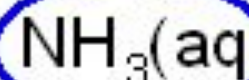
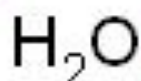
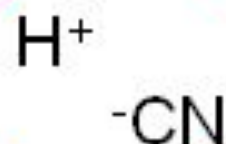
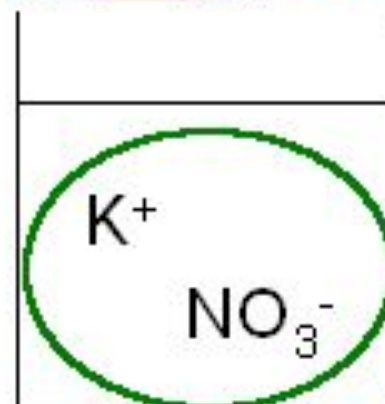
base

neutral

(3 of each)



sulphuric acid



sodium carbonate solution