

1. Define : Buffer solution

2. How will the pH of a buffer solution change if we add a *small* amount of water?  
(increase, decrease, or remain the same)

3. Consider the table given below, write a **balanced** chemical equation for any reaction taking place between solute particles. Then write the formulas of the **major** particles present (just as you would for a net-ionic equation) in each of the following solutions below. Decide on which of the solutions below would show a buffer action.

|  | Particles present | Is it a buffer? (Yes or No) |
|--|-------------------|-----------------------------|
| Na <sub>2</sub> SO <sub>3</sub>  |                   |                             |
| KHSO <sub>4</sub>  |                   |                             |
| NaF  |                   |                             |
| Equal volumes of <u>0.10 M</u> HCN and <u>0.05 M</u> NaOH<br><u>Equation:</u>                            |                   |                             |
| Equal volumes of <u>0.10 M</u> NaOH and <u>0.05 M</u> H <sub>2</sub> CO <sub>3</sub><br><u>Equation:</u> |                   |                             |
| NaHS   |                   |                             |

|  |  |  |
|--|--|--|
| Equal volumes of <u>0.10 M</u> HNO <sub>3</sub> and <u>0.10 M</u> NH <sub>3</sub> (aq)<br>equation:            |  |  |
| Equal volumes of <u>0.10 M</u> NH <sub>3</sub> and <u>0.05 M</u> HBr<br>Equation:                              |  |  |
| Equal volumes of <u>0.10 M</u> H <sub>2</sub> C <sub>2</sub> O <sub>4</sub> and <u>0.10 M</u> KOH<br>Equation: |  |  |