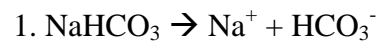


Answers: HW#3



Molarity = 0.5 M, Osmolarity = 1.0 M

2. final volume = 1 nl, final osmolarity = 0.4 M

3. Electrical neutrality means that the overall concentration of cations in a biological compartment must equal the overall concentration of anions in that compartment. Osmotic balance must also be maintained to prevent water movement in and out the cell. In order to reach electrical neutrality and, at the same time, maintain osmotic balance, concentration imbalance of ions inside and outside the cell will be produced. Thus, energy in the form of ATP must be used to selectively prevent a net movement of certain ions across the plasma membrane by diffusion.

4. final osmolarity = 0.2 M. The cell will explode.

5. Fick's law: 寫出 The direction and rate of movement (gas or solute) depends on the concentration, the surface area available for diffusion, and the distance of diffusion 即可

Boyle's law: the product of pressure and volume for gas in a chamber is constant under isothermal condition