Chemistry & Biochemistry

Presentation guide

CC = Statement of the competence for a core competence
E = Elements of the competence for a specific statement of competence
P = Performance criteria for competency; associated with a specific element of the competence

Core Competence CC.2

Explain the principles of chemistry and biochemistry as they pertain to respiratory therapy

E.1 Explain each of the following basic chemical terms and concepts as they pertain to respiratory therapy

P1.1 Element, Atom, Proton, Neutron, Electron, Valence and Isotope
P1.2 Atomic Number, Atomic Weight, Molecular Weight and Avogadro’s Law
P1.3 Compound vs. Molecule
P1.4 Ion, Cation, Anion, Electrolyte and Salt
P1.5 Chemical Bonds - Ionic and Covalent
P1.6 Oxidation and Reduction
P1.7 Kinetic Energy, Potential Energy and Gradient
P1.8 Anabolism and Catabolism
P1.9 Organic vs. Inorganic Compounds
P1.10 Equilibrium
P1.11 Reversible Reaction
P1.12 Law of Mass Action
P1.13 Water as a Universal Solvent, Physical Characteristics of Water and Hydrogen Bonding
P1.14 Hydrolysis Reaction
P1.15 Dissociation
P1.16 Enzyme
P1.17 pH, Acid and Base
P1.18 Cathode, Anode, Electrode, Voltage, Current and Resistance
E.2 Explain each of the following biochemical terms and concepts as they pertain to respiratory therapy

P2.1 Mixture, Solution, Solvent, Solute, Crystalloid, Colloid and Suspension
P2.2 Strong Acid, Strong Base and pK
P2.3 Acidosis and Acidemia
P2.4 Alkalosis and Alkalemia
P2.5 Fixed Acid
P2.6 Volatile Acid
P2.7 Buffers – Chemical Buffers, Closed Buffer Systems and Open Buffer Systems
P2.8 Conjugate Base
P2.9 Amphoteric Compound or Molecule
P2.10 Law of Electroneutrality and Anion Gap
P2.11 Gradient, Diffusion, Osmosis, Facilitated Diffusion, Filtration and Active Transport Mechanisms