GLOSSARY

A

absolute zero the temperature at which all molecular motion stops (0 K on the Kelvin scale or –273.16ºC on the Celsius scale) (371)

accuracy a description of how close a measurement is to the true value of the quantity measured (44)

acid-base indicator a substance that changes in color depending on the pH of the solution that the substance is in (511)

acid ionization constant the term K_a (605)

actinide any of the elements of the actinide series, which have atomic numbers from 89 (actinium, Ac) through 103 (lawrencium, Lr) (136)

activated complex a molecule in an unstable state intermediate to the reactants and the products in the chemical reaction (565)

activation energy the minimum amount of energy required to start a chemical reaction (564)

activity series a series of elements that have similar properties and that are arranged in descending order of chemical activity; examples of activity series include metals and halogens (285)

actual yield the measured amount of a product of a reaction (317)

addition reaction a reaction in which an atom or molecule is added to an unsaturated molecule (735)

adensosine diphosphate (ADP) an organic molecule that is involved in energy metabolism; composed of a nitrogenous base, a sugar, and two phosphate groups (766)

adenosine triphosphate (ATP) an organic molecule that acts as the main energy source for cell processes; composed of a nitrogenous base, a sugar, and three phosphate groups (766)

alcohol an organic compound that contains one or more hydroxyl groups attached to carbon atoms (731)

aldehyde an organic compound that contains the carbonyl group, —CHO (733)

alkali metal one of the elements of Group 1 of the periodic table (lithium, sodium, potassium, rubidium, cesium, and francium) (142)

alkaline-earth metal one of the elements of Group 2 of the periodic table (beryllium, magnesium, calcium, strontium, barium, and radium) (142)

alkane a hydrocarbon characterized by a straight or branched carbon chain that contains only single bonds (716)

alkene a hydrocarbon that contains one or more double bonds (724)

alkyl group a group of atoms that forms when one hydrogen atom is removed from an alkane molecule (719)

alkyl halide a compound formed from an alkyl group and a halogen (fluorine, chlorine, bromine, or iodine) (732)

alkyne a hydrocarbon that contains one or more triple bonds (727)

alpha particle a positively charged atom that is released in the disintegration of radioactive elements and that consists of two protons and two neutrons (686)

amine an organic compound that can be considered to be a derivative of ammonia (733)

amino acid any one of 20 different organic molecules that contain a carboxyl and an amino group and that combine to form proteins (756)

amorphous solid a solid in which the particles are not arranged with periodicity or order (338)

amphoteric describes a substance, such as water, that has the properties of an acid and the properties of a base (485)

anabolism the metabolic synthesis of proteins, fats, and other large biomolecules from smaller molecules; requires energy in the form of ATP (769)

angular momentum quantum number the quantum number that indicates the shape of an orbital (107)

anion an ion that has a negative charge (159)

anode the electrode on whose surface oxidation takes place; anions migrate toward the anode, and electrons leave the system from the anode (656)

aromatic hydrocarbon a member of the class of hydrocarbons (of which benzene is the first member) that consists of assemblages of cyclic conjugated carbon atoms and that is characterized by large resonance energies (729)

Arrhenius acid a substance that increases the concentration of hydronium ions in aqueous solution (473)

Arrhenius base a substance that increases the concentration of hydroxide ions in aqueous solution (473)

artificial transmutation the transformation of atoms of one element into atoms of another element as a result of a nuclear reaction, such as bombardment with neutrons (691)

atmosphere of pressure the pressure of Earth's atmosphere at sea level; exactly equivalent to 760 mm Hg (364)

atom the smallest unit of an element that maintains the chemical properties of that element (6, 72)

atomic mass unit a unit of mass that describes the mass of an atom or molecule; it is exactly 1/12 of the mass of a carbon atom with mass number 12 (abbreviation, amu) (80)

atomic number the number of protons in the nucleus of an atom; the atomic number is the same for all atoms of an element (77)

atomic radius one-half of the distance between the center of identical atoms that are not bonded together (150)