

## CONSTANTS

| Description                                 | Value  |
|---|--|
| Acceleration of gravity on Earth ( $g$ )    | 9.8 m/s <sup>2</sup>                                       |
| Speed of light in a vacuum ( $c$ )          | $3.00 \times 10^8$ m/s                                     |
| Planck's constant ( $h$ )                   | $6.63 \times 10^{-34}$ J•s = $4.14 \times 10^{-15}$ eV•s   |
| Electron rest mass                          | $9.11 \times 10^{-31}$ kg                                  |
| Proton rest mass                            | $1.67 \times 10^{-27}$ kg                                  |
| Charge of electron                          | $-1.60 \times 10^{-19}$ C                                  |
| Coulomb's constant ( $k_e$ )                | $9.0 \times 10^9$ N•m <sup>2</sup> /C <sup>2</sup>         |
| Boltzmann's constant ( $k$ )                | $1.38 \times 10^{-23}$ J/K                                 |
| Gas constant ( $R$ )                        | 8.31 J/(mol•K)   |
| Gravitational constant ( $G$ )              | $6.67 \times 10^{-11}$ N•m <sup>2</sup> /kg <sup>2</sup>   |
| Permeability of free space ( $\mu_0$ )      | $4\pi \times 10^{-7}$ T•m/A                                |
| Permittivity of free space ( $\epsilon_0$ ) | $8.85 \times 10^{-12}$ C <sup>2</sup> /(N•m <sup>2</sup> ) |
| Avogadro's number                           | $6.02 \times 10^{23}$ particles/mole                       |