

## APPENDICES

### APPENDIX A 1 THE GREEK ALPHABET

Alpha	A	$\alpha$	Iota	I	$\iota$	Rho	P	$\rho$
Beta	B	$\beta$	Kappa	K	$\kappa$	Sigma	$\Sigma$	$\sigma$
Gamma	$\Gamma$	$\gamma$	Lambda	$\Lambda$	$\lambda$	Tau	T	$\tau$
Delta	$\Delta$	$\delta$	Mu	M	$\mu$	Upsilon	Y	$\upsilon$
Epsilon	E	$\varepsilon$	Nu	N	$\nu$	Phi	$\Phi$	$\phi, \varphi$
Zeta	Z	$\zeta$	Xi	$\Xi$	$\xi$	Chi	X	$\chi$
Eta	H	$\eta$	Omicron	O	$\omicron$	Psi	$\Psi$	$\psi$
Theta	$\Theta$	$\theta$	Pi	$\Pi$	$\pi$	Omega	$\Omega$	$\omega$

### APPENDIX A 2 COMMON SI PREFIXES AND SYMBOLS FOR MULTIPLES AND SUB-MULTIPLES

Factor	Multiple		Sub-Multiple		
	Prefix	Symbol	Factor	Prefix	symbol
$10^{18}$	Exa	E	$10^{-18}$	atto	a
$10^{15}$	Peta	P	$10^{-15}$	femto	f
$10^{12}$	Tera	T	$10^{-12}$	pico	p
$10^9$	Giga	G	$10^{-9}$	nano	n
$10^6$	Mega	M	$10^{-6}$	micro	$\mu$
$10^3$	kilo	k	$10^{-3}$	milli	m
$10^2$	Hecto	h	$10^{-2}$	centi	c
$10^1$	Deca	da	$10^{-1}$	deci	d

## APPENDIX A 3 SOME IMPORTANT CONSTANTS

Name	Symbol	Value
Speed of light in vacuum	$c$	$2.9979 \times 10^8 \text{ m s}^{-1}$
Charge of electron	$e$	$1.602 \times 10^{-19} \text{ C}$
Gravitational constant	$G$	$6.673 \times 10^{-11} \text{ N m}^2 \text{ kg}^{-2}$
Planck constant	$h$	$6.626 \times 10^{-34} \text{ J s}$
Boltzmann constant	$k$	$1.381 \times 10^{-23} \text{ J K}^{-1}$
Avogadro number	$N_A$	$6.022 \times 10^{23} \text{ mol}^{-1}$
Universal gas constant	$R$	$8.314 \text{ J mol}^{-1} \text{ K}^{-1}$
Mass of electron	$m_e$	$9.110 \times 10^{-31} \text{ kg}$
Mass of neutron	$m_n$	$1.675 \times 10^{-27} \text{ kg}$
Mass of proton	$m_p$	$1.673 \times 10^{-27} \text{ kg}$
Electron-charge to mass ratio	$e/m_e$	$1.759 \times 10^{11} \text{ C/kg}$
Faraday constant	$F$	$9.648 \times 10^4 \text{ C/mol}$
Rydberg constant	$R$	$1.097 \times 10^7 \text{ m}^{-1}$
Bohr radius	$a_0$	$5.292 \times 10^{-11} \text{ m}$
Stefan-Boltzmann constant	$\sigma$	$5.670 \times 10^{-8} \text{ W m}^{-2} \text{ K}^{-4}$
Wien's Constant	$b$	$2.898 \times 10^{-3} \text{ mK}$
Permittivity of free space	$\epsilon_0$ $1/4\pi \epsilon_0$	$8.854 \times 10^{-12} \text{ C}^2 \text{ N}^{-1} \text{ m}^{-2}$ $8.987 \times 10^9 \text{ N m}^2 \text{ C}^{-2}$
Permeability of free space	$\mu_0$	$4\pi \times 10^{-7} \text{ T m A}^{-1}$ $\cong 1.257 \times 10^{-6} \text{ Wb A}^{-1} \text{ m}^{-1}$

## OTHER USEFUL CONSTANTS

Name	Symbol	Value
Mechanical equivalent of heat	$J$	$4.186 \text{ J cal}^{-1}$
Standard atmospheric pressure	1 atm	$1.013 \times 10^5 \text{ Pa}$
Absolute zero	0 K	$-273.15 \text{ }^\circ\text{C}$
Electron volt	1 eV	$1.602 \times 10^{-19} \text{ J}$
Unified Atomic mass unit	1 u	$1.661 \times 10^{-27} \text{ kg}$
Electron rest energy	$mc^2$	0.511 MeV
Energy equivalent of 1 u	1 u $c^2$	931.5 MeV
Volume of ideal gas(0 °C and 1atm)	V	$22.4 \text{ L mol}^{-1}$
Acceleration due to gravity (sea level, at equator)	$g$	$9.78049 \text{ m s}^{-2}$