Chemistry Exam Information Sheet

Constant	Symbol	Value
Avogadro's number	N_A	6.022×10^{23} mol^{-1}
Gas constant	R	0.08206 $\frac{L \cdot atm}{K \cdot mol}$ or 0.08315 $\frac{L \cdot bar}{K \cdot mol}$ or 8.315 $\frac{L \cdot kPa}{K \cdot mol}$ or 8.315 $\frac{J}{K \cdot mol}$
Dissociation constant for water	K_w	1.0×10^{-14} at 25°C
Rydberg constant	R_H	1.097×10^{7} m^{-1}
Rydberg constant (in energy units)		-2.180×10^{-18} J
Mass of electron	m_e	9.109×10^{-31} kg
Charge of electron	e	1.602×10^{-19} C
Faraday's constant	F	9.649×10^{4} C mol^{-1}
Speed of light in a vacuum	c	2.998×10^{8} m s^{-1}
Planck's constant	h	6.626×10^{-34} J s

Differential rate laws	Integrated rate laws
$-\frac{d[A]}{dt} = k[A]^0$	$[A]_t - [A]_0 = -kt$
$-\frac{d[A]}{dt} = k[A]^1$	$ln[A]_t - ln[A]_0 = -kt$
$-\frac{d[A]}{dt} = k[A]^2$	$\frac{1}{[A]_t} - \frac{1}{[A]_0} = kt$

Other Information

Quadratic formula: $x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$

Arrhenius equation: $k = Ae^{\frac{-E_a}{RT}}$

0.00°C = 273.15 K

THE PERIODIC TABLE of ELEMENTS

1 A												3 A	4 A	5 A	6 A	7 A	8 A
1 **H** 1.008	2 A							8 B									2 **He** 4.003
3 **Li** 6.941	4 **Be** 9.012											5 **B** 10.81	6 **C** 12.01	7 **N** 14.01	8 **O** 16.00	9 **F** 19.00	10 **Ne** 20.18
11 **Na** 22.990	12 **Mg** 24.305	3 B	4 B	5 B	6 B	7 B	8	9	10	1 B	2 B	13 **Al** 26.98	14 **Si** 28.09	15 **P** 30.97	16 **S** 32.07	17 **Cl** 35.45	18 **Ar** 39.95
19 **K** 39.10	20 **Ca** 40.08	21 **Sc** 44.96	22 **Ti** 47.88	23 **V** 50.94	24 **Cr** 52.00	25 **Mn** 54.94	26 **Fe** 55.85	27 **Co** 58.93	28 **Ni** 58.69	29 **Cu** 63.55	30 **Zn** 65.39	31 **Ga** 69.72	32 **Ge** 72.59	33 **As** 74.92	34 **Se** 78.96	35 **Br** 79.90	36 **Kr** 83.80
37 **Rb** 85.47	38 **Sr** 87.62	39 **Y** 88.91	40 **Zr** 91.22	41 **Nb** 92.91	42 **Mo** 95.94	43 **Tc** (98)	44 **Ru** 101.1	45 **Rh** 102.9	46 **Pd** 106.4	47 **Ag** 107.9	48 **Cd** 112.4	49 **In** 114.8	50 **Sn** 118.7	51 **Sb** 121.8	52 **Te** 127.6	53 **I** 126.9	54 **Xe** 131.30
55 **Cs** 132.9	56 **Ba** 137.3	57 **La** * 138.9	72 **Hf** 178.5	73 **Ta** 180.9	74 **W** 183.8	75 **Re** 186.2	76 **Os** 190.2	77 **Ir** 192.2	78 **Pt** 195.1	79 **Au** 197.0	80 **Hg** 200.6	81 **Tl** 204.4	82 **Pb** 207.2	83 **Bi** 209.0	84 **Po** (210)	85 **At** (210)	86 **Rn** (222)
87 **Fr** (223)	88 **Ra** (226)	89 **Ac** ** (227)	104 **Rf** (257)	105 **Db** (260)	106 **Sg** (263)	107 **Bh** (262)	108 **Hs** (265)	109 **Mt** (266)	110 **Ds** (281)	111 **Rg** (280)	112 **Cn** (285)	113 **Uut** (284)	114 **Fl** (289)	115 **Uup** (288)	116 **Lv** (293)	117 **Uus** (294)	118 **Uuo** (294)

*	58 **Ce** 140.1	59 **Pr** 140.9	60 **Nd** 144.2	61 **Pm** (147)	62 **Sm** 150.4	63 **Eu** 152.0	64 **Gd** 157.3	65 **Tb** 158.9	66 **Dy** 162.5	67 **Ho** 164.9	68 **Er** 167.3	69 **Tm** 168.9	70 **Yb** 173.0	71 **Lu** 175.0
**	90 **Th** 232.0	91 **Pa** (231)	92 **U** 238.0	93 **Np** (237)	94 **Pu** (242)	95 **Am** (243)	96 **Cm** (247)	97 **Bk** (247)	98 **Cf** (249)	99 **Es** (254)	100 **Fm** (253)	101 **Md** (256)	102 **No** (254)	103 **Lr** (257)