L3-CHEMR





Level 3 Chemistry, 2018

2.00 p.m. Thursday 15 November 2018

RESOURCE BOOKLET

Refer to this booklet to answer the questions in your Question and Answer Booklets.

Check that this booklet has pages 2–3 in the correct order and that none of these pages is blank.

YOU MAY KEEP THIS BOOKLET AT THE END OF THE EXAMINATION.

Formulae for 91390: Demonstrate understanding of thermochemical principles and the properties of particles and substances

$$n = cV$$

$$n = \frac{m}{M}$$

$$q = mc\Delta T$$

$$\Delta_{r}H^{\circ} = \sum \Delta_{f}H^{\circ}(\text{products}) - \sum \Delta_{f}H^{\circ}(\text{reactants})$$

Formulae for 91392: Demonstrate understanding of equilibrium principles in aqueous systems

$$pH = -\log[H_{3}O^{+}] \qquad [H_{3}O^{+}] = 10^{-pH}$$

$$K_{w} = [H_{3}O^{+}][OH^{-}] = 1 \times 10^{-14} \text{ at } 25^{\circ}C$$

$$pK_{a} = -\log K_{a} \qquad K_{a} = 10^{-pK_{a}}$$

$$K_{a} = \frac{[H_{3}O^{+}][A^{-}]}{[HA]}$$

$$K_{s} = s^{2} \qquad K_{s} = 4s^{3}$$

$$n = cV$$

$$n = \frac{m}{M}$$

PERIODIC TABLE OF THE ELEMENTS

Г																				
18	2 H	4.0	10	Ne	20.2	18	Ar	40.0	36	Kr	83.8	54	Xe	131	98	Rn	222	118	Og	
		17	6		19.0	17	C	35.5	35	Br	6.62	53	Ι	127	85	At	210	117		
		91	8	0	16.0	16	S	32.1	34	Se	79.0	52	Te	128	84	P_0	210	116	Lv	
		15	7	Z	14.0	15	Ь	31.0	33	As	74.9	51	$\mathbf{S}\mathbf{p}$	122	83	Bi	209	115	Mc	
		14	9	C	12.0	14	Si	28.1	32	Ge	72.6	50	Sn	119	82	Pb	207	114	E	
		13	5	В	10.8	13	A	27.0	31	Ga	2.69	49	In	115	81	П	204	113	N	
								12	30	Zn	65.4	48	Cd	112	08	$_{ m Hg}$	201	112	Cn	277
								II	29	Cu	63.6	47	Ag	108	62	Au	197	1111	Rg	272
		nass						0I	28	Z	58.7	46	Pd	106	78	Pt	195	110	Ds	271
		Relative atomic mass						6	27	Co	58.9	45	Rh	103	77	Ir	192	109	Mt	268
		Relative						8	26	Fe	55.9	44	Ru	101	92	Os	190	108	Hs	265
	1	1.0						_	25	Mn	54.9	43	Тс	6.86	75	Re	186	107	Bh	264
	ımber		_					9	24	Cr	52.0	42		95.9		*	184	106	S	263
	Atomic number							5	23	>	50.9	41	QN.	92.9	73	\mathbf{La}	181	105	Db	262
	7							4	22	Ï	47.9	40	Zr	91.2	72	Hf	179	104	Rf	261
								33	21	Sc	45.0	39	Y	88.9	71	Lu	175	103	Lr	262
		7	4	Be	0.6	12	Mg	24.3	20	Ca	40.1	38	Sr	9.78	99	Ba	137	88	Ra	226
		I	3	Li	6.9	11	Na	23.0	19	X	39.1		Rb	85.5	55	Cs	133	87	Fr	223

	57	58	59	09	61	62	63	64	65	99	29	89	69	70
le	La	Ce	Pr	Nd	Pm	Sm	Eu	Cd	Tp	Dy	H_0	Er	Tm	ΛP
Series	139	140	141	144	147	150	152	157	159	163	165	167	169	173
	68	06	91	92	93	94	95	96	26	86	66	100	101	102
Actinide	Ac	$\mathbf{T}\mathbf{h}$	Pa	n	dN	Pu	Am	Cm	Bk	Cf	Es	Fm	Md	No
	227	232	231	238	237	239	241	244	249	251	252	257	258	259