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11th CHEMISTRY

ई- पाठशाला

रसायन विज्ञान

तत्त्वों का वर्गीकरण एवं गुणधर्मों में आवर्तिता

एकदम बेसिक से ...

26 सितंबर 2026 || 03:00 PM

अध्याय-03 | भाग-04



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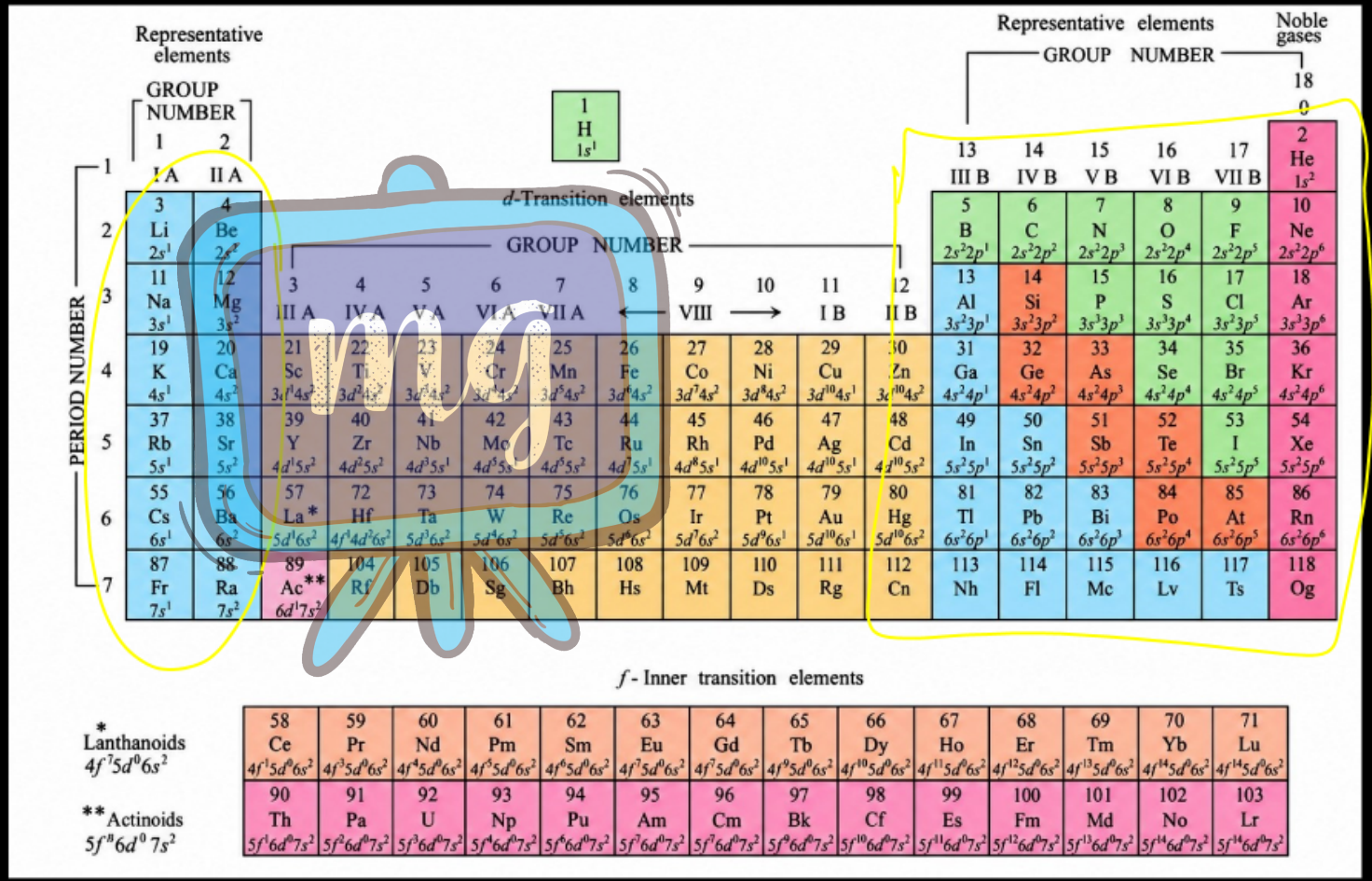
आज क्या पढेंगे ?

ब्लॉक का परिचय



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Period	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
			III A	IV A	V A	VI A	VII A	←	VIII	→	I B	II B	III B	IV B	V B	VI B	VII B	0
1	1 H $1s^1$																	2 He $1s^2$
2	3 Li $2s^1$	4 Be $2s^2$											5 B $2s^2 2p^1$	6 C $2s^2 2p^2$	7 N $2s^2 2p^3$	8 O $2s^2 2p^4$	9 F $2s^2 2p^5$	10 Ne $2s^2 2p^6$
3	11 Na $3s^1$	12 Mg $3s^2$	13 Al $3s^2 3p^1$	14 Si $3s^2 3p^2$	15 P $3s^2 3p^3$	16 S $3s^2 3p^4$	17 Cl $3s^2 3p^5$	18 Ar $3s^2 3p^6$										
4	19 K $4s^1$	20 Ca $4s^2$	21 Sc $3d^1 4s^2$	22 Ti $3d^2 4s^2$	23 V $3d^3 4s^2$	24 Cr $3d^5 4s^1$	25 Mn $3d^5 4s^2$	26 Fe $3d^6 4s^2$	27 Co $3d^7 4s^2$	28 Ni $3d^8 4s^2$	29 Cu $3d^{10} 4s^1$	30 Zn $3d^{10} 4s^2$	31 Ga $4s^2 4p^1$	32 Ge $4s^2 4p^2$	33 As $4s^2 4p^3$	34 Se $4s^2 4p^4$	35 Br $4s^2 4p^5$	36 Kr $4s^2 4p^6$
5	37 Rb $5s^1$	38 Sr $5s^2$	39 Y $4d^1 5s^2$	40 Zr $4d^2 5s^2$	41 Nb $4d^3 5s^1$	42 Mo $4d^5 5s^1$	43 Tc $4d^5 5s^2$	44 Ru $4d^7 5s^1$	45 Rh $4d^8 5s^1$	46 Pd $4d^{10} 5s^1$	47 Ag $4d^{10} 5s^1$	48 Cd $4d^{10} 5s^2$	49 In $5s^2 5p^1$	50 Sn $5s^2 5p^2$	51 Sb $5s^2 5p^3$	52 Te $5s^2 5p^4$	53 I $5s^2 5p^5$	54 Xe $5s^2 5p^6$
6	55 Cs $6s^1$	56 Ba $6s^2$	57 La* $5d^1 6s^2$	72 Hf $4f^{14} 4d^2 6s^2$	73 Ta $5d^3 6s^2$	74 W $5d^4 6s^2$	75 Re $5d^5 6s^2$	76 Os $5d^6 6s^2$	77 Ir $5d^7 6s^2$	78 Pt $5d^9 6s^1$	79 Au $5d^{10} 6s^1$	80 Hg $5d^{10} 6s^2$	81 Tl $6s^2 6p^1$	82 Pb $6s^2 6p^2$	83 Bi $6s^2 6p^3$	84 Po $6s^2 6p^4$	85 At $6s^2 6p^5$	86 Rn $6s^2 6p^6$
7	87 Fr $7s^1$	88 Ra $7s^2$	89 Ac** $6d^1 7s^2$	104 Rf	105 Db	106 Sg	107 Bh	108 Hs	109 Mt	110 Ds	111 Rg	112 Cn	113 Nh	114 Fl	115 Mc	116 Lv	117 Ts	118 Og

* Lanthanoids $4f^{n}5d^{0}6s^{2}$	58 Ce $4f^1 5d^0 6s^2$	59 Pr $4f^3 5d^0 6s^2$	60 Nd $4f^4 5d^0 6s^2$	61 Pm $4f^5 5d^0 6s^2$	62 Sm $4f^6 5d^0 6s^2$	63 Eu $4f^7 5d^0 6s^2$	64 Gd $4f^7 5d^0 6s^2$	65 Tb $4f^9 5d^0 6s^2$	66 Dy $4f^{10} 5d^0 6s^2$	67 Ho $4f^{11} 5d^0 6s^2$	68 Er $4f^{12} 5d^0 6s^2$	69 Tm $4f^{13} 5d^0 6s^2$	70 Yb $4f^{14} 5d^0 6s^2$	71 Lu $4f^{14} 5d^0 6s^2$
** Actinoids $5f^{n}6d^{0}7s^{2}$	90 Th $5f^0 6d^0 7s^2$	91 Pa $5f^2 6d^0 7s^2$	92 U $5f^3 6d^0 7s^2$	93 Np $5f^4 6d^0 7s^2$	94 Pu $5f^6 6d^0 7s^2$	95 Am $5f^7 6d^0 7s^2$	96 Cm $5f^7 6d^0 7s^2$	97 Bk $5f^9 6d^0 7s^2$	98 Cf $5f^{10} 6d^0 7s^2$	99 Es $5f^{11} 6d^0 7s^2$	100 Fm $5f^{12} 6d^0 7s^2$	101 Md $5f^{13} 6d^0 7s^2$	102 No $5f^{14} 6d^0 7s^2$	103 Lr $5f^{14} 6d^0 7s^2$

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ns^{1-2}

S-ब्लॉक तत्व



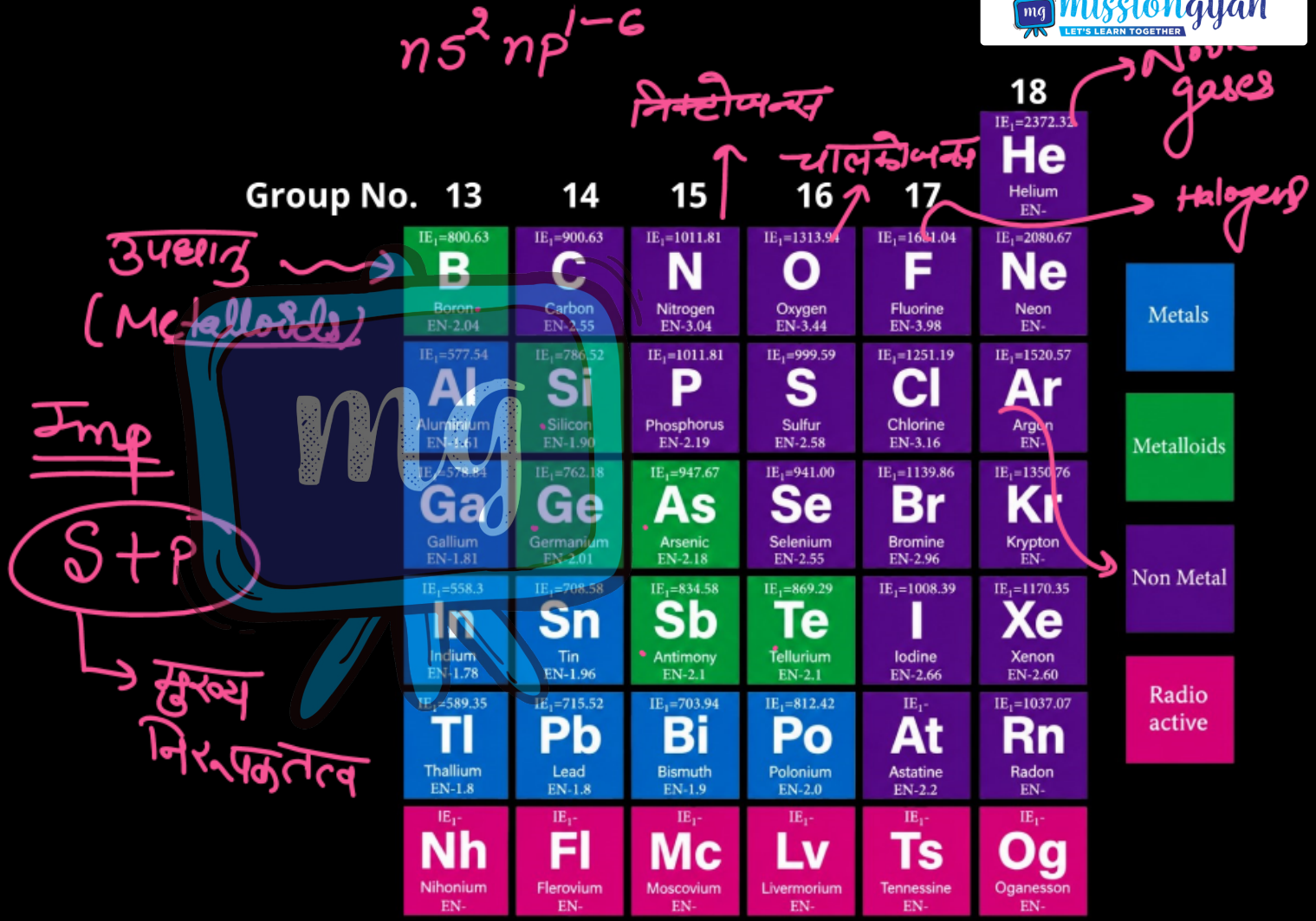
G-I
क्षारीय धातुयें
(ns^1)
+1

G-II
क्षारीय मृदा धातुयें
(ns^2)
+2

3 1 Li Lithium 6.941	4 2 Be Beryllium 9.012182
11 1 Na Sodium 22.98976928	12 2 Mg Magnesium 24.3050
19 1 K Potassium 39.0983	20 2 Ca Calcium 40.078
37 1 Rb Rubidium 85.4678	38 2 Sr Strontium 87.62
55 1 Cs Cesium 132.9054519	56 2 Ba Barium 137.327
87 1 Fr Francium (223)	88 2 Ra Radium (226)

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d-Block

$(n-1)d^{1-10}ns^2$

$3d^{1-10}4s^2$

d-block elements electronic configuration

General electronic configuration $(n-1)d^{1\text{ to }10}ns^2$

21 **Sc** Scandium $[Ar]3d^14s^2$	22 **Ti** Titanium $[Ar]3d^24s^2$	23 **V** Vanadium $[Ar]3d^34s^2$	24 **Cr** Chromium $[Ar]3d^54s^1$	25 **Mn** Manganese $[Ar]3d^54s^2$	26 **Fe** Iron $[Ar]3d^64s^2$	27 **Co** Cobalt $[Ar]3d^74s^2$	28 **Ni** Nickel $[Ar]3d^84s^2$	29 **Cu** Copper $[Ar]3d^{10}4s^1$	30 **Zn** Zinc $[Ar]3d^{10}4s^2$
39 **Y** Yttrium $[Kr]4d^15s^2$	40 **Zr** Zirconium $[Kr]4d^25s^2$	41 **Nb** Niobium $[Kr]4d^45s^1$	42 **Mo** Molybdenum $[Kr]4d^55s^1$	43 **Tc** Technetium $[Kr]4d^55s^2$	44 **Ru** Ruthenium $[Kr]4d^75s^1$	45 **Rh** Rhodium $[Kr]4d^85s^1$	46 **Pd** Palladium $[Kr]4d^{10}5s^0$	47 **Ag** Silver $[Kr]4d^{10}5s^1$	48 **Cd** Cadmium $[Kr]4d^{10}5s^2$
57 **La** Lanthanum $4f^05d^16s^2$	72 **Hf** Hafnium $4f^{14}5d^26s^2$	73 **Ta** Tantalum $4f^{14}5d^36s^2$	74 **W** Tungsten $4f^{14}5d^46s^2$	75 **Re** Rhenium $4f^{14}5d^56s^2$	76 **Os** Osmium $4f^{14}5d^66s^2$	77 **Ir** Iridium $4f^{14}5d^76s^2$	78 **Pt** Platinum $4f^{14}5d^96s^1$	80 **Au** Gold $4f^{14}5d^{10}6s^1$	80 **Hg** Mercury $4f^{16}5d^{10}6s^2$
89 **Ac** Actinium $5f^0\,6d^1\,7s^2$	104 **Rf** Rutherfordium $5f^{16}6d^27s^2$	105 **Db** Dubnium $5f^{16}6d^37s^2$	106 **Sg** Seaborgium $5f^{16}6d^47s^2$	107 **Bh** Bohrium $5f^{16}6d^57s^2$	108 **Hs** Hassium $5f^{16}6d^77s^2$	109 **Mt** Meitnerium $5f^{16}6d^77s^2$	110 **Ds** Darmstadtium $5f^{14}6d^87s^2$	111 **Rg** Roentgenium $5f^{16}6d^97s^2$	112 **Cn** Copernicium $5f^{16}6d^{10}7s^2$

$3d^{1-10}4s^2$ 3d

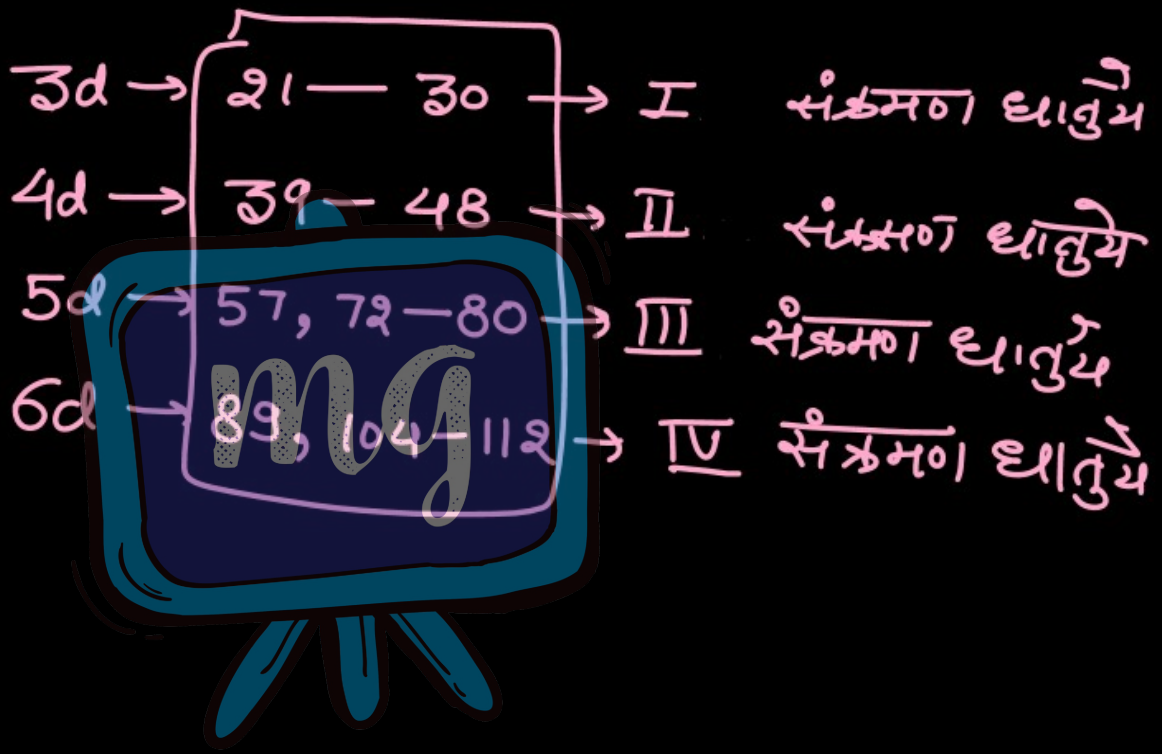
$4d^{1-10}5s^2$ 4d

$5d^{1-10}6s^2$ 5d

$6d^{1-10}7s^2$ 6d

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3d - साइंस टीचर बना कोमी मन के को नी च्यू जानी

Sc Ti V Cr Mn Fe Co Ni Cu Zn

4d - थारी जरा निश्चा मौन तक रुकावट राह पड़ी आगे सूद

Y Zr Nb Mo Tc Ru Rh Pd Ag Cd



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5d- ला हफ ता वरना रे उधर इधर पिटाई और हो.A

La Hf Ta W Re Os Ir Pt Au Hg

6d - अश रफ डब संग भीम हस मत दस रग कोन।

Ac Rf Db Sg Bh Hs Mt Ds Rg Cn



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आन्तरिक संक्रमण तत्व

$(n-2)f^{1-14}(n-1)d^{0-1}ns^2$

f-block Elements

सीमा पर Nd Pm समझाये यू गुंडे तब उई होंगे अगर कुम जेसी लू

La	58 Ce Cerium 140.116	59 Pr Praseodymium 140.908	60 Nd Neodymium 144.242	61 Pm Promethium 1455	62 Sm Samarium 150.362	63 Eu Europium 151.964	64 Gd Gadolinium 157.25	65 Tb Terbium 158.925	66 Dy Dysprosium 162.500	67 Ho Holmium 164.930	68 Er Erbium 167.259	69 Tm Thulium 168.934	70 Yb Ytterbium 173.045	71 Lu Lutetium 174.967
Ac	90 Th Thorium 232.038	91 Pa Protactinium 231.036	92 U Uranium 238.029	93 Np Neptunium 237	95 Pu Plutonium 244	96 Am Americium 243	96 Cm Curium 247	97 Bk Berkelium 247	98 Cf Californium 251	99 Es Einsteinium 252	100 Fm Fermium 257	101 Md Mendelevium 258	102 No Nobelium 259	103 Lr Lawrencium 262

थोरियम परमाणु यू निपटारा दूसरा समान अमेरिका बराक साफा इस फरमान मध्य को लरे

$La = 4f = I$ Inner Transition Series $(4f^{1-14}5d^{0-1}6s^2)$

$An = 5f = II$ " " " $(5f^{1-14}6d^{0-1}7s^2)$

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Atomic Number	Name	Symbol	Electronic Ln
57	Lanthanum	La	$5d^1 6s^2$
58	Cerium	Ce	$4f^1 5d^1 6s^2$
59	Praseodymium	Pr	$4f^3 6s^2$
60	Neodymium	Nd	$4f^4 6s^2$
61	Promethium	Pm	$4f^5 6s^2$
62	Samarium	Sm	$4f^6 6s^2$
63	Europium	Eu	$4f^7 6s^2$
64	Gadolinium	Gd	$4f^7 5d^1 6s^2$
65	Terbium	Tb	$4f^9 6s^2$
66	Dysprosium	Dy	$4f^{10} 6s^2$
67	Holmium	Ho	$4f^{11} 6s^2$
68	Erbium	Er	$4f^{12} 6s^2$
69	Thulium	Tm	$4f^{13} 6s^2$
70	Ytterbium	Yb	$4f^{14} 6s^2$
71	Lutetium	Lu	$4f^{14} 5d^1 6s^2$

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Atomic Number	Name	Symbol	Electronic con M
89	Actinium	Ac	$6d^1 7s^2$
90	Thorium	Th	$6d^2 7s^2$
91	Protactinium	Pa	$5f^2 6d^1 7s^2$
92	Uranium	U	$5f^3 6d^1 7s^2$
93	Neptunium	Np	$5f^4 6d^1 7s^2$
94	Plutonium	Pu	$5f^6 7s^2$
95	Americium	Am	$5f^7 7s^2$
96	Curium	Cm	$5f^7 6d^1 7s^2$
97	Berkelium	Bk	$5f^9 7s^2$
98	Californium	Cf	$5f^{10} 7s^2$
99	Einstenium	Es	$5f^{11} 7s^2$
100	Fermium	Fm	$5f^{12} 7s^2$
101	Mendelevium	Md	$5f^{13} 7s^2$
102	Nobelium	No	$5f^{14} 7s^2$
103	Lawrencium	Lr	$5f^{14} 6d^1 7s^2$