EngineeringRise

Modern periodic law and block classification

Formulas and units, JEE Main. Status: Reviewed on 2026-11-20.

Result	Formula	Units or note
Modern periodic law	properties = periodic function of atomic number Z	no unit
Noble gas atomic numbers	2, 10, 18, 36, 54, 86, 118	dimensionless
Period lengths	2, 8, 8, 18, 18, 32, 32	number of elements
Group of s-block	group = number of ns electrons Valid when: s-block elements; helium is placed in group 18 despite 1s2	1 or 2
Group of p-block	group = 10 + ns + np electrons Valid when: p-block elements, counting outer ns and np electrons (He excluded)	13 to 18
Group of d-block	group = (n-1)d + ns electrons Valid when: d-block; use the expected filling-order configuration (as for Pd)	3 to 12
f-block size	4f (14) + 5f (14) = 28 elements	number of elements
Gap in Z between periods in the same group	s-block: +8 (period 2 to 3, 3 to 4), +18 (4 to 5); p-block: +8 (2 to 3), +18 (3 to 4, 4 to 5); d-block: +18 (4 to 5) Valid when: moving down one group, for the period pairs listed; later periods differ	difference in Z

Full lesson with worked examples:
https://www.engineeringrise.in/learn/learn/jee-main/chemistry/classification-of-elements-and-periodicity/modern-periodic-law-and-blo

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