***Chemistry***

**6: Electronic Structure and Periodic Properties of Elements**

**6.5: Periodic Variations in Element Properties**

67. Based on their positions in the periodic table, predict which has the smallest atomic radius: Mg, Sr, Si, Cl, I.

Solution

Cl

69. Based on their positions in the periodic table, predict which has the largest first ionization energy: Mg, Ba, B, O, Te.

Solution

O

71. Based on their positions in the periodic table, rank the following atoms in order of increasing first ionization energy: F, Li, N, Rb

Solution

Rb < Li < N < F

73. Atoms of which group in the periodic table have a valence shell electron configuration of *ns*2*np*3?

Solution

15 (5A)

75. Based on their positions in the periodic table, list the following atoms in order of increasing radius: Mg, Ca, Rb, Cs.

Solution

Mg < Ca < Rb < Cs

77. Based on their positions in the periodic table, list the following ions in order of increasing radius: K+, Ca2+, Al3+, Si4+.

Solution

Si4+< Al3+< Ca2+< K+

79. Which atom and/or ion is (are) isoelectronic with Br+: Se2+, Se, As–, Kr, Ga3+, Cl–?

Solution

Se, As–

81. Compare both the numbers of protons and electrons present in each to rank the following ions in order of increasing radius: As3–, Br–, K+, Mg2+.

Solution

Mg2+< K+< Br–<As3–

83. Of the five elements Sn, Si, Sb, O, Te, which has the most endothermic reaction? (E represents an atom.) What name is given to the energy for the reaction?



Solution

O, IE1

85. Which main group atom would be expected to have the lowest second ionization energy?

Solution

Ra

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