

PERIODIC TRENDS

1. EXPLAIN WHY FLUORINE HAS A SMALLER ATOMIC RADIUS THAN BOTH OXYGEN AND CHLORINE. Trend → size decreases across, increases down

2. ARRANGE THESE ELEMENTS IN ORDER OF DECREASING ATOMIC SIZE: SULFUR, CHLORINE, ALUMINUM, AND SODIUM. DOES THIS SHOW A PERIODIC OR A GROUP TREND? Na, Al, S, Cl

3. DISTINGUISH BETWEEN THE FIRST AND THE SECOND IONIZATION ENERGIES OF AN ATOM. 1st IE is energy to remove 1st e⁻; 2nd IE to remove 2nd e⁻

4. INDICATE WHICH ELEMENT IN EACH OF THE FOLLOWING PAIRS HAS GREATER FIRST IONIZATION ENERGY. (A) LITHIUM, BORON (B) CESIUM, ALUMINUM (C) MAGNESIUM, STRONTIUM

5. WHICH PARTICLE HAS THE LARGEST RADIUS IN EACH ATOM/ION PAIR? (A) Na, Na⁺ (B) S, S⁻² (C) I, I⁻ (D) Al, Al³⁺

6. WHICH OF THESE ELEMENTS HAS A LARGER IONIZATION ENERGY? (A) SODIUM OR POTASSIUM (B) MAGNESIUM OR PHOSPHORUS

7. IN GENERAL, WOULD YOU EXPECT METALS OR NONMETALS TO HAVE HIGHER IONIZATION ENERGIES? EXPLAIN nonmetals → they want to hold on to their e⁻ b/c they are closer to filling s/p levels

8. ARRANGE THE FOLLOWING ELEMENTS IN ORDER OF INCREASING IONIZATION ENERGY.

(A) Be, Mg, Sr (B) Bi, Cs, Ba (C) Na, Al, S
Sr, Mg, Be Cs, Ba, Bi Na, Al, S

9. IN EACH PAIR, WHICH ELEMENT IS MORE ELECTRONEGATIVE?

(A) Cl, F (B) C, N (C) Mg, Ne (D) Ca, As

10. IN EACH PAIR, WHICH HAS GREATER ATOMIC RADIUS?

(a) Na, Li (B) Sr, Mg (C) C, Ge (D) Se, O