

HOME WORK 7
CHAPTER 7

Name _____

MULTIPLE CHOICE. Choose the one alternative that best completes the statement or answers the question.

- 1) In which set of elements would all members be expected to have very similar chemical properties? 1) _____
A) Na, Mg, K
B) O, S, Se
C) Ne, Na, Mg
D) S, Se, Si
E) N, O, F
- 2) The atomic radius of main-group elements generally increases down a group because _____. 2) _____
A) effective nuclear charge decreases down a group
B) effective nuclear charge increases down a group
C) the principal quantum number of the valence orbitals increases
D) effective nuclear charge zigzags down a group
E) both effective nuclear charge increases down a group and the principal quantum number of the valence orbitals increases
- 3) Atomic radius generally decreases as we move _____. 3) _____
A) down a group; the period position has no effect
B) up a group and from left to right across a period
C) down a group and from left to right across a period
D) down a group and from right to left across a period
E) up a group and from right to left across a period
- 4) Which of the following is an isoelectronic series? 4) _____
A) B^{5-} , Si^{4-} , As^{3-} , Te^{2-}
B) O^{2-} , F^- , Ne , Na^+
C) F^- , Cl^- , Br^- , I^-
D) Si^{2-} , P^{2-} , S^{2-} , Cl^{2-}
E) S, Cl, Ar, K
- 5) Which isoelectronic series is correctly arranged in order of increasing radius? 5) _____
A) $Cl^- < Ar < K^+ < Ca^{2+}$
B) $K^+ < Ca^{2+} < Ar < Cl^-$
C) $Ca^{2+} < K^+ < Ar < Cl^-$
D) $Ca^{2+} < Ar < K^+ < Cl^-$
E) $Ca^{2+} < K^+ < Cl^- < Ar$
- 6) Sodium is much more apt to exist as a cation than is chlorine. This is because _____. 6) _____
A) chlorine has a greater electron affinity than sodium does
B) chlorine has a greater ionization energy than sodium does
C) chlorine is a gas and sodium is a solid
D) chlorine is bigger than sodium
E) chlorine is more metallic than sodium

- 7) The list that correctly indicates the order of metallic character is _____. 7) _____
- A) $P > S > Se$
 - B) $Na > K > Rb$
 - C) $Si > P > S$
 - D) $F > Cl > S$
 - E) $B > N > C$
- 8) Which one of the following compounds would produce an acidic solution when dissolved in water? 8) _____
- A) Na_2O B) CaO C) SrO D) MgO E) CO_2
- 9) Which one of the following is not true about the alkali metals? 9) _____
- A) They all readily form ions with a +1 charge.
 - B) They have the lowest first ionization energies of the elements.
 - C) They are low density solids at room temperature.
 - D) They are very reactive elements.
 - E) They all have 2 electrons in their valence shells.
- 10) Which of the following statements is not true for oxygen? 10) _____
- A) The chemical formula of ozone is O_3 .
 - B) Dry air is about 79% oxygen.
 - C) Oxygen forms peroxide and superoxide anions.
 - D) The most stable allotrope of oxygen is O_2 .
 - E) Oxygen is a colorless gas at room temperature.