

Electron Configuration and the Periodic Table

NAME

DATE

PERIOD

Multiple Choice and Fill in the blank

1. The elements characterized by the electron-configuration notation of s^2p^5 in the highest occupied energy level belong to Group _____, which is named _____.
2. Strontium's highest occupied energy level is $4s^2$. Strontium belongs to Group _____, which is named _____.
3. The most active member of the halogen group, with atomic number 9, is named _____.
4. Aluminum, atomic number 13, has the electron configuration $[\text{Ne}] 3s^23p^1$. Aluminum is in Period _____.
5. Cesium, atomic number 55, has the electron configuration $[\text{Xe}] 6s^1$. Cesium is In Period _____.
6. Neutral atoms with an s^2p^6 electron configuration in the highest energy level are named the _____.
7. The elements that border the zigzag line through the p-block in the periodic table are called the _____.
8. Elements to the right-hand side of the periodic table, or p-block elements, tend to have properties most closely associated with
 - (a) gases
 - (b) nonmetals
 - (c) metals
 - (d) metalloids
9. Compared to the alkali metals, the alkaline earth metals
 - (a) are less reactive
 - (b) have lower melting points
 - (c) are less dense
 - (d) combine more readily with nonmetals

10. How many elements will there be in a period that involves the filling of s and p sublevels only?
(a) 2 (c) 18
(b) 8 (d) 32
11. Elements in which the d-sublevel is being filled have the properties of
(a) metals (c) metalloids
(b) nonmetals (d) gases
12. In nature, the alkali metals exist as
(a) elements (c) complex ions
(b) compounds (d) gases
13. The length of each period in the periodic table is determined by the
(a) atomic masses of the elements; (c) sublevels being filled with electrons;
(b) atomic numbers of the elements; (d) number of isotopes of each element

True – False

Classify each of these statements as

always true, AT
sometimes true, ST
or never true, NT

- _____ (14) In his periodic table, Mendeleev arranged the elements in ascending order of atomic number.
- _____ (15) The representative elements are the Groups 1-2 and 13-18 elements.
- _____ (16) The outermost s or p sublevels are only partially filled for the representative elements.
- _____ (17) The transition metals are the Group B elements.
- _____ (18) Chlorine has the electron configuration $1s^2 2s^2 2p^6 3s^2 3p^7$
- _____ (19) The element in Group 4A, period 3, is gallium.
- _____ (20) The radius of an atom cannot be measured directly.
- _____ (21) Removing one electron from an atom results in the formation of a positive ion with a 1+ charge.
- _____ (22) Diamond, a form of carbon, is a good conductor of electricity,
- _____ (23) Alkali metals are stored under water to protect them from the oxygen in the air.