

Assignment 9

Choose/Fill-in the correct answer.

1. Name the species that has this ground state electron configuration. $1s^2 2s^2 2p^6 3s^2 3p^6 4s^2 3d^{10} 4p^6 5s^2 4d^{10} 5p^2$.

- Te²⁻
 Sn
 Sr²⁺
 Ge

Choose the isotope of ${}^{12}_6\text{Z}$.

2. The letter "Z" is the symbol for the element in each of the following.

- ${}^{14}_6\text{Z}$ ${}^{14}_7\text{Z}$ ${}^{16}_7\text{Z}$ ${}^{16}_8\text{Z}$

3. Which principle or rule states that only two electrons can occupy an orbital?

- Aufbau principle
 Hund's rule
 Pauli Exclusion principle
 None of the above.

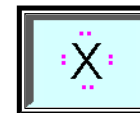
4. A 6.02×10^{23} -atom sample of strontium from naturally occurring sources weighs

- 38 amu
 90 amu
 6.02×10^{23} amu
 87.6 grams

5. Nitrogen occurs naturally in two isotopic forms, ${}^{14}\text{N}$ and ${}^{15}\text{N}$. The relative percent abundance of ${}^{14}\text{N}$ and ${}^{15}\text{N}$ is 99.64% and 0.36% respectively. The atomic mass of ${}^{14}\text{N}$ is 14.00307 amu. The atomic mass of ${}^{15}\text{N}$ is 15.00011 amu. Calculate the atomic mass of nitrogen.

- 14.007 amu
 14.302 amu
 14.450 amu
 14.533 amu

6. The Lewis structure, as shown below, represent



- He.
 P.
 Xe.
 Cs.

7. A calcium atom and a calcium ion have

- the same chemical properties.
 the same size.
 the same number of electrons.
 the same number of protons.

8. What would happen if magnesium bromide comes into contact with chlorine gas?

- Nothing happens.
 Acid/Base neutralization reaction takes place.
 A double-replacement reaction takes place.
 A single-replacement reaction takes place.

9. What is the driving force of the following double-replacement reaction
silver nitrate + hydrochloric acid \rightarrow ?

- No driving force; no reaction occurs
 formation of a gas
 precipitate forms
 formation of an electrolyte

10. Calculate the volume (in liters) of a 0.75 M KOH solution that is needed to neutralize completely a 25.0 mL of a 0.195 M HCl solution.

(Enter numeric answer here.)

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