

Quiz 4A
11 points

Name KEY
Maleckar/960/Fall 2009

1. Which atom should have the highest first ionization energy?

- A. Rb B. Cl C. Se
D. Ar E. K

2pts

2. Which atom should have the lowest first ionization energy?

- A. Rb B. Cl C. Se
D. Ar E. K

2pts

3. The ion with the smallest diameter is:

- A. Br^- B. Cl^- C. I^-
D. F^- E. O^{2-}
9p 10e⁻ 8p 10e⁻

2pts

4. Which of the following species is isoelectronic with argon?

- A. Kr B. Se^{2-} C. Cl^-
D. Si^{2+} E. Si^{4+}

18e⁻

2pts

5. Which atom has the most electron affinity?

- A. P B. Al C. Si
D. Cl E. B

2pts

6. Which has more electron affinity --- C or N?

C 1pt

Quiz 4B
11 points

Name KEY
Maleckar/960/Fall 2009

1. How many d electrons does Mo^{2+} have?

4 ~~10~~ 1pt

2. Rank the following in terms of the atomic/ionic size, giving a "1" to the largest and a "4" to the smallest.

1pt #1 1pt #2 1pt

3. Which has the greatest first ionization energy?

- A. Al
- B. Ga
- C. Cl
- D. Br
- E. K

2pts.

4. Which atom has the greatest electron affinity?

- A. Na
- B. Li
- C. Be
- D. N
- E. F

2pts.

5. Rank the following atoms in order of increasing atomic radius.

- A. $\text{K}^+ < \text{Ca}^{2+} < \text{Ar} < \text{Cl}^-$
- B. $\text{Cl}^- < \text{Ar} < \text{K}^+ < \text{Ca}^{2+}$
- C. $\text{Ca}^{2+} < \text{Ar} < \text{K}^+ < \text{Cl}^-$
- D. $\text{Ca}^{2+} < \text{K}^+ < \text{Ar} < \text{Cl}^-$
- E. $\text{Ca}^{2+} < \text{K}^+ < \text{Cl}^- < \text{Ar}$

2pts.

K^+ Ca^{2+} Ar Cl^-
 19p 20p 18p 17p
 18e⁻ 18e⁻ 18e 18e⁻
 smallest largest

Quiz 4C
11 points

Name KEY
Maleckar/960/Fall 2009

1. Which has the highest first ionization energy?

- A. Al
- C. Mg
- E. Na

- B. P
- D. Si

2 pts.

2. Arrange the following atoms and ions in order of increasing atomic radius. Give a "1" to the smallest, "5" to the largest.

F
9p
10e⁻
4

Ne
10p
10e⁻
3

Mg²⁺
12p
10e⁻
1

O²⁻
8p
10e⁻
5

Na¹⁺
11p
10e⁻
2

2 pts: 2, 3, 4 ranking

3. Which has the greater electron affinity -- Si or Cl?

Cl
1 pt

4. Which atom's valence electrons experience the greatest effective nuclear charge?

- A. Mg
- C. Si

- B. S
- D. Cl

E. Cl

2 pts.

5. Give the abbreviated electron configuration for Cu³⁺.

[Ar] 3d⁸

2 pts.

Quiz 4D
11 points

Name KEY
Maleckar/960/Fall 2009

1. Which has the largest radius?

- A. Br
- C. F
- E. I

- B. Br⁻
- D. F⁻
- F. I⁻

F. I⁻ 2pts

2. Write the abbreviated electron configuration for Mn³⁺.

[Ar] 3d⁴ 2pts

3. Which equation correctly represents the electron affinity of lithium?

- A. Li + e⁻ → Li⁻
- B. Li → Li⁺ + e⁻
- C. Li → Li⁻ + e⁻
- D. Li⁻ → Li + e⁻
- E. Li⁺ + e⁻ → Li

2pts

4. Which of the following sets is an isoelectronic series?

A. F, Ne, Na

B. ~~P⁺~~, S²⁻, Ar⁻

C. Al³⁺, S²⁻, Ar

D. Cl, Ar, K

E. F⁻, Ne, Na⁺

2pts

5. Which has the largest first ionization energy?

A. B

B. N

C. P

D. Si

E. C

2pts

6. Which is larger.....Al or Al³⁺?

Al 1pt

Quiz 4E
11 points

Name KEY
Maleckar/960/Fall 2009

1. Which of the following sets is an isoelectronic series?

- A. F, Ne, Na B. P^{3-} , S^{2-} , Ar⁻
C. Al^{3+} , S^{2-} , Ar D. Cl, Ar, K
E. F, Ne, Na^+

20/3.

2. Which is the correct order of atomic radius sizes?

- A. $Mg > Na > P > Si > Ar$
B. $Ar > Si > P > Na > Mg$
C. $Si > P > Ar > Na > Mg$
D. $Na > Mg > Si > P > Ar$
E. $Ar > P > Si > Mg > Na$

Na Mg Si P Ar

20/3.

3. Which reaction represents the second ionization of phosphorous?

- A. $P^+ + e^- \rightarrow P^{2+}$
C. $P^- + e^- \rightarrow P^{2-}$
E. $P^+ + e^- \rightarrow P$
B. $P \rightarrow P^+ + e^-$
D. $P^+ \rightarrow P^{2+} + e^-$

20/3.

4. Which of the following would you expect to have the highest ionization energy?

- A. F B. F C. Cl
D. Li E. I

20/3.

5. Which of the following would you expect to have the lowest ionization energy?

- A. F B. F C. Cl
D. Li E. I

20/3.

6. Which is larger.....Ti or Ti^+ ?

Ti 1pt