

This print-out should have 6 questions. Multiple-choice questions may continue on the next column or page – find all choices before answering.

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**LDE Electron Config Simple 001**

**001** 5.0 points

What is the electron configuration for a mono-valent calcium cation ( $\text{Ca}^+$ )?

1.  $[\text{Ne}]3s^23p^6$
2.  $[\text{Ar}]4s^24p^1$
3.  $[\text{Ar}]4s^1$  **correct**
4.  $[\text{Ar}]4s^23d^1$
5.  $[\text{Ar}]4s^2$

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**LDE ENC Calculation 001**

**002** 5.0 points

What is the effective nuclear charge experienced by the  $2p$  electrons of an aluminum atom ( $\text{Al}$ )?

1. 11 **correct**
2. 6
3. 4
4. 9
5. 13

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**LDE Ionization Energy 001**

**003** 5.0 points

If the following first ionization energies correspond to an alkaline earth metal, a halogen, an alkali metal, a noble gas and an earth metal, which one most likely belongs to the halogen?

1.  $520 \text{ kJ} \cdot \text{mol}^{-1}$
2.  $800 \text{ kJ} \cdot \text{mol}^{-1}$
3.  $899 \text{ kJ} \cdot \text{mol}^{-1}$

4.  $1680 \text{ kJ} \cdot \text{mol}^{-1}$  **correct**

5.  $2080 \text{ kJ} \cdot \text{mol}^{-1}$

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**LDE Rank Ionic Radius 001**

**004** 5.0 points

Arrange the following ions in order of increasing radius:  $\text{K}^+$ ,  $\text{Li}^+$ ,  $\text{Be}^{2+}$ ,  $\text{Na}^+$ .

1.  $\text{K}^+ < \text{Be}^{2+} < \text{Li}^+ < \text{Na}^+$
2.  $\text{Li}^+ < \text{Na}^+ < \text{K}^+ < \text{Be}^{2+}$
3.  $\text{Na}^+ < \text{K}^+ < \text{Be}^{2+} < \text{Li}^+$
4.  $\text{Be}^{2+} < \text{Li}^+ < \text{Na}^+ < \text{K}^+$  **correct**

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**LDE Electron Config p Block Ion 001**

**005** 5.0 points

What is the electronic configuration of  $\text{Sn}^{4+}$ ?

1.  $[\text{Kr}]4d^{10}$  **correct**
2.  $[\text{Kr}]5s^24d^8$
3.  $[\text{Kr}]5s^24d^{10}5p^6$
4.  $[\text{Kr}]5s^14d^9$
5.  $[\text{Kr}]5s^24d^{10}5p^2$

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**LDE Fine Structure of Trends 001**

**006** 5.0 points

Which of the following elements would have a lower ionization energy than nitrogen and lower electron affinity than silicon?

1. Al
2. P **correct**
3. None of these
4. C
5. F