**Periodicity WS**

1. Element Q has the following first three ionization en­ergies:

|  |  |  |  |
| --- | --- | --- | --- |
|  | I1 | I2 | I3 |
|  | (kJ/mol) | | |
| Q | 496 | 4568 | 6920 |

What is the formula for the most likely compound of element Q with chlorine? Explain the choice of for­mula on the basis of the ionization energies.

2. Compare the properties of two elements labeled A and B.

A = [Ar]3d10 B = [Kr]5s24d105p5

(i) Is element A a nonmetal or a metal?

(ii) Which element should have the greater electron affinity?Why?

(iii) Which element should have the larger first ionization energy?Why?

3. Periodic properties.

(i) Of the elements Al, N, O, and P, which has the largest atomic radius?Why?

(ii) Of the elements Al, N, O, and P, which has the largest first ionization energy?Why?

(iii) Which is larger, Cl or Cl-?Why?

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