

1: Which of the following has the highest first ionisation energy?

- A: Argon.
- B: Krypton
- C: Xenon .
- D: Neon.
- E: Helium.

2: Which of the following defines the first ionisation energy ?

- A: The energy needed to remove 1 mole of electrons from one mole of solid atoms.
- B: The energy required to remove 2 moles of electrons from 0.5 moles of solid atoms.
- C: The energy needed to remove 1 mole of electrons from one mole of gaseous atoms.
- D: The energy needed to add 1 mole of electrons to one mole of gaseous atoms.
- E: The energy needed to add 1 mole of electrons to one mole of negative ions.

3: Which of the following shows the units of first ionisation energy ?

- A: moles.
- B: kJ per mole.
- C: moles per kJ.
- D: kJ.
- E: joules.

4: Which of the following equations represents the first ionization energy of bromine?

- A: $\text{Br}_2(\text{l}) \rightarrow \text{Br}_2(\text{g})$
- B: $\text{Br}_2(\text{l}) \rightarrow 2\text{Br}(\text{g})$
- C: $\text{Br}(\text{g}) \rightarrow \text{Br}^+(\text{g}) + \text{e}^-$
- D: $\text{Br}(\text{l}) \rightarrow \text{Br}^+(\text{g}) + \text{e}^-$
- E: $\text{Br}(\text{g}) + \text{e}^- \rightarrow \text{Br}^-(\text{g})$

5: Which of the following members of the second period has the highest first ionisation energy?

- A: Be.
- B: B.
- C: N.
- D: O.
- E: F.

6: Which of the following has the lowest first ionisation energy ?

- A: Cs.
- B: Li.
- C: Na.
- D: K.
- E: Rb.

7: Which of the following represents the **second** ionization energy of lithium?

- A: $\text{Li}(\text{g}) \rightarrow \text{Li}^+(\text{g}) + \text{e}^-$.
- B: $\text{Li}(\text{g}) \rightarrow \text{Li}^{2+}(\text{g}) + 2\text{e}^-$.
- C: $\text{Li}^+(\text{g}) \rightarrow \text{Li}^{2+}(\text{g}) + \text{e}^-$
- D: $\text{Li}(\text{s}) \rightarrow \text{Li}(\text{g})$
- E: $\text{Li}^{2+}(\text{g}) \rightarrow \text{Li}^{3+}(\text{g}) + \text{e}^-$