

**SMART EXAM RESOURCES**  
**9701 AS CHEMISTRY TOPIC QUESTIONS**  
**TOPIC: ATOMIC STRUCTURE**  
**SUB-TOPIC: FACTORS INFLUENCING IONISATION ENERGY**  
**SET-1**

**1.4.3-Factors-Influencing-Ionisation-Energy-Set-1-qp-ms.**

1.

The first ionisation energy of potassium, K, is  $418 \text{ kJ mol}^{-1}$ . The first ionisation energy of strontium, Sr, is  $548 \text{ kJ mol}^{-1}$ .

Which statement helps to explain why Sr has a greater first ionisation energy than K?

- A The charge on a Sr nucleus is greater than the charge on a K nucleus.
- B The outer electron in a Sr atom experiences greater shielding than the outer electron in a K atom.
- C The outer electron in a Sr atom experiences spin-pair repulsion.
- D The outer electron in a Sr atom is further from the nucleus than the outer electron in a K atom.

2.

Why is the first ionisation energy of phosphorus greater than the first ionisation energy of silicon?

- A A phosphorus atom has one more proton in its nucleus.
- B The atomic radius of a phosphorus atom is greater.
- C The outer electron in a phosphorus atom is more shielded.
- D The outer electron in a phosphorus atom is paired.

3.

Why is the first ionisation energy of oxygen less than that of nitrogen?

- A. The nitrogen atom has its outer electron in a different orbital
- B. The nuclear charge on the oxygen atom is greater than that on nitrogen atom
- C. The oxygen atom has a pair of electrons in one p orbital that repel one another
- D. There is more shielding in an oxygen atom

4.

Which property of an atom does **not** affect its first ionisation energy?

- A the atomic radius
- B the number of electron shells
- C the number of neutrons
- D the number of protons