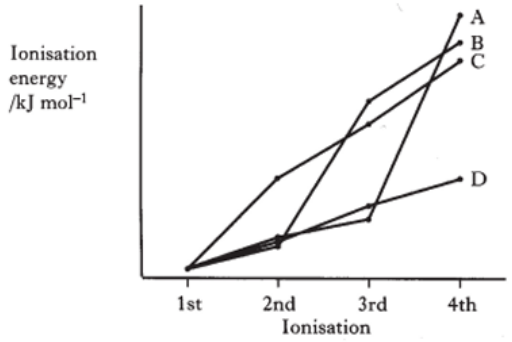
AH Exercise 1.2b

Ionisation Energy

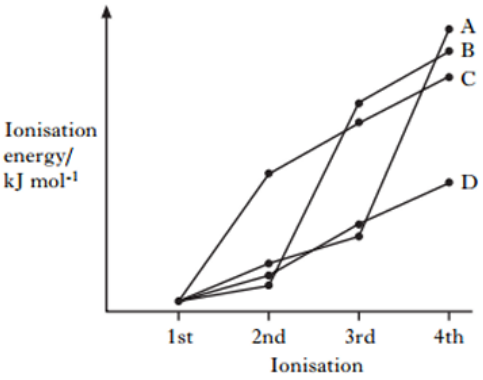
2005 AH MC2 and 2011 AH MC1 (86%)

2. Which of the following graphs represents the trend in successive ionisation energies of a Group 3 element?



2010 AH MC4 (77%)

4. Which line in the graph represents the trend in successive ionisation energies of a Group 2 element?



2013 AH MC1 (90%) and 2013 revAH MC1 (88%)

1. Which equation can be used to represent the second ionisation energy of the diatomic element, X?

A $X_2(g) \rightarrow X_2^{2+}(g) + 2e^-$

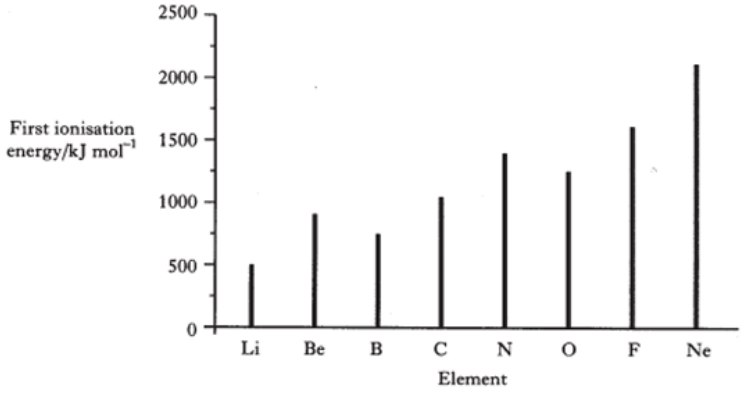
B $\frac{1}{2}X_2(g) \rightarrow X^{2+}(g) + 2e^-$

C $X^+(g) \rightarrow X^{2+}(g) + e^-$

D $X(g) \rightarrow X^{2+}(g) + 2e^-$

2004 AH L1

1. The graph below shows the first ionisation energies for the elements of the second period in the Periodic Table.



(*a*) (i) Why does the first ionisation energy tend to increase across the period? **1**

(ii) Give a reason why the first ionisation energy of nitrogen is higher than that of oxygen. **1**

(*b*) Explain why the **second** ionisation energy of lithium is the highest in this period. **1**

2007 AH L7b

7. The electronic configuration for cobalt, Co, in its ground state, is

$$1s^2\ 2s^2\ 2p^6\ 3s^2\ 3p^6\ 3d^7\ 4s^2.$$

(*b*) (i) Write an equation which represents the second ionisation energy for copper. **1**

(ii) Explain why copper has a higher second ionisation energy than cobalt. **1**