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CAIE A LEVEL Chemistry Topic Questions / 9701

1.4.5-Deduce-Formula-From-Ionisation-Energies-set-1-qp

Total Questions: 6

Note:

- For questions with answer choices as statements 1, 2 and 3, follow these instructions for selecting options A/B/C/D:
- A= 1, 2 and 3 are correct
- B=1 and 2 only are correct
- C=2 and 3 only are correct
- D=1 only is correct

Questions

Question 1:

The table gives the successive ionisation energies for an element X.

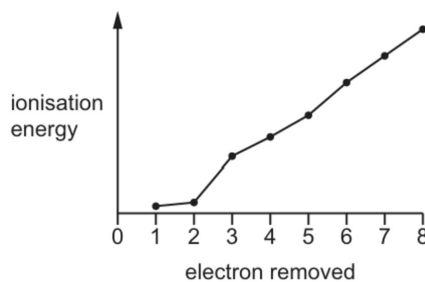
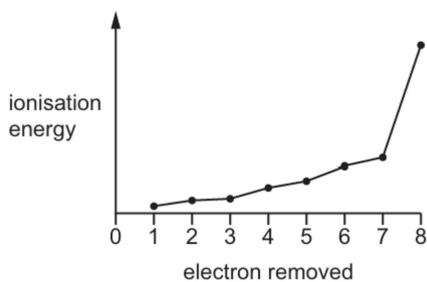
	1st	2nd	3rd	4th	5th	6th
ionisation energy / kJ mol^{-1}	950	1800	2700	4800	6000	12 300

What could be the formula of a chloride of X?

- A XCl B XCl_2 C XCl_3 D XCl_4

Question 2:

The first eight successive ionisation energies for two elements of Period 3 of the Periodic Table are shown in the graphs.



What is the formula of the ionic compound formed from these elements?

- A MgCl_2 B CaBr_2 C Na_2S D K_2Se

Question 3:

The table gives the successive ionisation energies for an element X.

	1st	2nd	3rd	4th	5th	6th
ionisation energy / kJ mol^{-1}	950	1800	2700	4800	6000	12300

What could be the formula of the chloride of X?

- A XCl B XCl_2 C XCl_3 D XCl_4

Questions (Continued)

Question 4:

The first four ionisation energies for element X are shown in the table.

ionisation energy	1st	2nd	3rd	4th
value / kJ mol^{-1}	577	1980	2960	6190

Which ion of X is produced by removing an electron from a filled shell?

- A X^+ B X^{2+} C X^{3+} D X^{4+}

Question 5:

Use of the Data Booklet is relevant to this question.

From which particle is the removal of an electron the most difficult?

- A $\text{Cl}^-(\text{g})$ B $\text{F}^-(\text{g})$ C $\text{K}^+(\text{g})$ D $\text{Na}^+(\text{g})$

Question 6:

The first four ionisation energies for element X are shown in the table.

ionisation energy	1st	2nd	3rd	4th
value / kJ mol^{-1}	577	1980	2960	6190

Which ion of X is produced by removing an electron from a filled shell?

- A X^+ B X^{2+} C X^{3+} D X^{4+}