

Mar
ks 5

- Complete the following table. Give, as required, the formula, the systematic name and the principal ions present in a solution prepared by adding the substance to water. For the substances that do not form ions in solution, write N/A in this column.

FORMULA	SYSTEMATIC NAME	PRINCIPAL IONS IN WATER SOLUTION
MgCl₂	magnesium chloride	Mg²⁺(aq), Cl⁻(aq)
Na₂CrO₄	sodium chromate	Na⁺(aq), CrO₄²⁻(aq)
CO	carbon monoxide	N/A
HIO	hypoiodous acid	H⁺(aq), IO⁻(aq)
Fe(NO₃)₃·6H₂O	iron(III) nitrate-6-water	Fe³⁺(aq), NO₃⁻(aq)

- Electron configurations are governed by three rules: the 'Aufbau Principle', the 'Pauli Exclusion Principle' and 'Hund's Rule of Maximum Spin Multiplicity'. The ground state electron configurations of He, N and O have been written INCORRECTLY, as shown below. For each element, name the electron configuration rule that has been broken.

Element	Electronic configuration					Name of rule that has been broken
He	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	Aufbau principle
	1s	2s	2p	2p	2p	
N	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	Hund's Rule
	1s	2s	2p	2p	2p	
O	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	Pauli Exclusion Principle
	1s	2s	2p	2p	2p	

Write the electron configuration of Fe²⁺**1s² 2s² 2p⁶ 3s² 3p⁶ 3d⁶**

What property of iron makes it useful for biological systems?

Stability of two oxidation states, Fe²⁺ and Fe³⁺.