

Marks
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
	magnesium chloride	
	sodium chromate	
CO		
		$\text{H}^+(\text{aq}), \text{IO}^-(\text{aq})$
	iron(III) nitrate-6-water	

- 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" value="↑↓"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	
	1s	2s	2p	2p	2p	
N	<input type="text" value="↑↓"/>	<input type="text" value="↑↓"/>	<input type="text" value="↑↓"/>	<input type="text" value="↑"/>	<input type="text"/>	
	1s	2s	2p	2p	2p	
O	<input type="text" value="↑↓"/>	<input type="text" value="↑↓"/>	<input type="text" value="↑↑"/>	<input type="text" value="↑"/>	<input type="text"/>	
	1s	2s	2p	2p	2p	

 Write the electron configuration of Fe^{2+}

What property of iron makes it useful for biological systems?