

Marks
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- Explain in terms of their electronic configurations and trends in ionisation energies across a period why the alkali metals (Group 1) are powerful *reducing* agents.

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- Compounds of *d*-block elements are frequently paramagnetic. Using the box notation to represent atomic orbitals, account for this property in compounds of Cu^{2+} .

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- Complete the following table.

Formula	Oxidation state of transition metal	Coordination number of transition metal	Number of <i>d</i> -electrons in metal in complex ion	Species formed upon dissolving in water
$\text{K}_2[\text{Ni}(\text{CN})_4]$				
$[\text{Cr}(\text{NH}_3)_5\text{Cl}]\text{Cl}_2$				
$[\text{Co}(\text{en})_3]\text{Br}_3$				

en = ethylenediamine = $\text{NH}_2\text{CH}_2\text{CH}_2\text{NH}_2$