

Marks
9

- Complete the following table.

Coordination compound	Oxidation number of transition metal	Number of d electrons around transition metal	Arrangement of d electrons					
$\text{K}_2[\text{PtCl}_4]$	+2	d^8	<table border="1" style="display: inline-table; vertical-align: middle;"><tr><td>↑↓</td><td>↑↓</td><td>↑↓</td><td>↑↓</td><td> </td></tr></table>	↑↓	↑↓	↑↓	↑↓	
↑↓	↑↓	↑↓	↑↓					
$\text{Na}[\text{MnO}_4]$	+7	d^0	<table border="1" style="display: inline-table; vertical-align: middle;"><tr><td> </td><td> </td><td> </td><td> </td><td> </td></tr></table>					
$(\text{NH}_4)_2[\text{CoCl}_4]$	+2	d^7	<table border="1" style="display: inline-table; vertical-align: middle;"><tr><td>↑↓</td><td>↑↓</td><td>↑</td><td>↑</td><td>↑</td></tr></table>	↑↓	↑↓	↑	↑	↑
↑↓	↑↓	↑	↑	↑				
$[\text{Cr}(\text{NH}_3)_5(\text{OH}_2)]\text{Cl}_3$	+3	d^3	<table border="1" style="display: inline-table; vertical-align: middle;"><tr><td>↑</td><td>↑</td><td>↑</td><td> </td><td> </td></tr></table>	↑	↑	↑		
↑	↑	↑						

Identify one paramagnetic and one diamagnetic species from the above table.

Paramagnetic: $(\text{NH}_4)_2[\text{CoCl}_4]$ and $[\text{Cr}(\text{NH}_3)_5(\text{OH}_2)]\text{Cl}_3$	Diamagnetic: $\text{K}_2[\text{PtCl}_4]$ and $\text{Na}[\text{MnO}_4]$
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