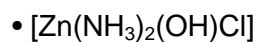
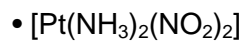


Name:

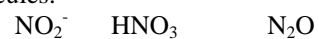
1. Draw 3D structures of the following complexes and identify those that may exist as **geometric isomers**:



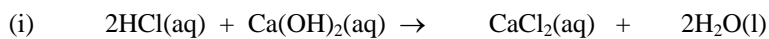
2. Ti(III) compounds are coloured, while Ti(IV) compounds are colourless. Why?

3. What is the **crystal field splitting energy**?

4. Assign the **oxidation state** of nitrogen in the following molecules:



5. Determine if the following reactions are **redox** or **metathesis reactions**, explain your decision. For redox reaction(s) identify the oxidised and reduced species.



6. Balance the equation for the following redox reaction in **acidic solution**. Your method for balancing the equation should be clearly presented.

