

2. Is a high spin or a low spin d^6 metal ion complex most likely to undergo substitution by a dissociative process? Explain the reasoning behind your choice.

3. Which of the following ions will be least reactive toward ligand substitution?

- a) d^4 h.s. $[\text{Cr}(\text{OH}_2)_6]^{2+}$ b) d^2 $[\text{V}(\text{OH}_2)_6]^{3+}$ c) d^3 $[\text{V}(\text{OH}_2)_6]^{2+}$ d) d^3 $[\text{Cr}(\text{OH}_2)_6]^{3+}$

Briefly explain the rationale for your selection.

4. Which of the following best represents the potential energy diagram for an exothermic reaction that proceeds by a D_d mechanism?

