Exercise IV

1) Which of the following compounds is an oxidant:

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B_2O_3 \\ Na_2B_4O_7 \\ NaBO_3(H_2O)_4 \\ Na_3BO_3
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Nr. 3

2) What are the two 'tricks' which are used to produce Aluminum by electrolysis?

Add Na₃AlF₆ (significantly lower melting point) and use carbon electrodes (formation of CO and CO₂ helps the energetics)

3) The +1 oxidation state is particularly important for which element: Al, B, Tl or Ga?

Tl

4) In which reaction is the MX₃ compound not behaving as a Lewis acid:

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2 AlCl<sub>3</sub> → Al<sub>2</sub>Cl<sub>6</sub>

TlBr<sub>3</sub> → TlBr + Br<sub>2</sub>

BF<sub>3</sub> + Et<sub>2</sub>O → BF<sub>3</sub>(OEt<sub>2</sub>)
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Nr. 2

5) The boron atoms in borazine are susceptible to:

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attack by a nucleophile attack by an electrophile
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Nr 1