Name: ___________________________ Date: __________________

[3 pt] 1. Why are Bond Dissociation Energies (BDE) a useful method for calculating \( \Delta H \) values? What advantage do they have over the tabulated \( \Delta H^\circ \) values? What disadvantage do they have?

[5 pt] 2. Use the BDE’s on the Equations Cheat Sheet to calculate the approximate \( \Delta H^\circ \) (in kJ) for the combustion of methane: \( \text{CH}_4(g) + 2\text{O}_2(g) \rightarrow \text{CO}_2(g) + 2\text{H}_2\text{O}(g) \)

[5 pt] 3. Use the BDE’s on the Equations Cheat Sheet to calculate the approximate \( \Delta H^\circ \) (in kJ) for the industrial synthesis of isopropyl alcohol from the reaction of propene and water:

[7 pt] 4. Use the BDE’s on the Equations Cheat Sheet to calculate the approximate \( \Delta H^\circ \) (in kJ) for the combustion of propane. (Hint: writing and balancing the complete reaction will no doubt prove useful.)