- Briefly explain why H_2Se is a stronger Brønsted-Lowry acid than H_2O and a weaker acid than H_2Te.

Marks 2

In general, when comparing binary acids within the same group, the strength of the bond E-H between the element (E) and hydrogen determines the acidity:

$$\mathbf{H_2E(aq) + H_2O(l) \rightleftharpoons EH^-(aq) + H_3O^+(aq)}$$

As the atomic size of E becomes larger, the E-H becomes longer and weaker. Thus H_3O^+ is more readily formed in aqueous solution and acidity increases.