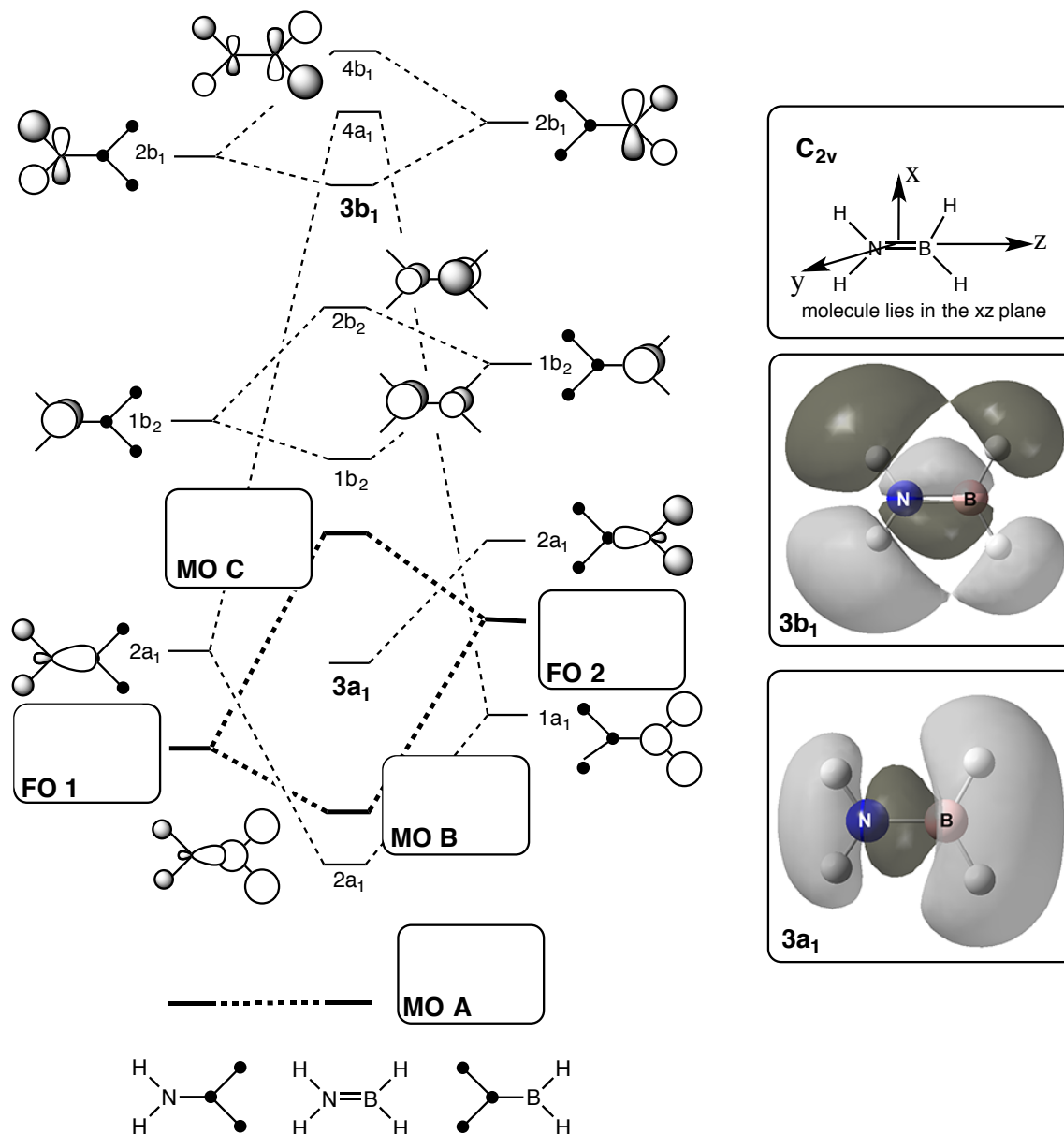


Example Model (20 marks)

Consider the partial MO diagram of H_2NBH_2 below. Do **NOT** redraw the whole MO diagram.



1. **Draw** and **identify** the symmetry of the missing fragment orbitals **FO 1** and **FO 2**, and the missing MOs **MO A**, **MO B** and **MO C**.

(8 marks)

2. **Draw** the linear combination of atomic orbitals (LCAO) diagram for the $3a_1$ and $3b_1$ MOs. Use your diagram to **identify** and **explain** key features that are important in evaluating the character of **these** MOs.

(8 marks)

3. **List** the MOs that contribute to the B-H σ -bonds, **explain** why you selected these MOs.

(4 marks)