1. Determine the lattice energy for lithium fluoride (LiF) using the following information.

Process	Energy (kJ/mol)
Sublimation energy for lithium	161
Ionization energy for lithium	520
Bond dissociation energy for fluorine gas	154
Electron affinity of fluorine	-328
Energy of formation of LiF (from its elements in their natural state)	-617

2. Draw a ladder type energy diagram to show the Born-Haber cycle for LiF using the above data.
3. Draw Lewis dot structures for the following.
   - HCN
   - HNC
   - PH_3
   - $CHCl_3$
   - NH_4^+
   - SeF_2
   - CO_2
   - XeO_4
   - ClO_4^-
   - PO_3^{3-}

4. Use the following data to calculate the energy of formation of magnesium fluoride (MgF_2) from its elements in their natural state.

Process	Energy (kJ/mol)
Lattice energy	-3916
First ionization energy for magnesium	735
Second ionization energy for magnesium	1445
Electron affinity of fluorine	-328
Bond dissociation energy for fluorine	154
Sublimation energy for magnesium	150

5. Draw a ladder type energy diagram to show the Born-Haber cycle for MgF_2 using the above data.