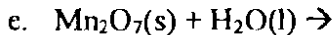
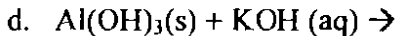
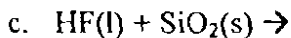
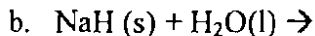
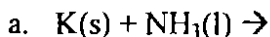


1. Write down the products of the following reactions. (25%)

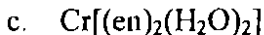
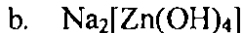
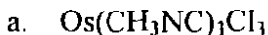


2. For each molecule or salt (27%)

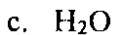
i) give chemical names

ii) give electron count for the central atoms

iii) sketch all isomers



3. Construct the MO diagram for each of the following diatomic molecules. (30%)



4. Find the number of unpaired electrons, magnetic moment, ligand field stabilization energy, and ground term symbol for each of the following complex ions:

