

Answers

1. Give the number of **core and valence** electrons in the following elements: Li, Te, and Ga. (6 pts)

Li: 2 core, 1 valence

Te: 46 core, 6 valence

Ga: 28 core, 3 valence

2. Write Lewis Dot structures for the following molecules: BeI_2 , CBr_2Cl_2 , and AsI_3 . (6 pts)

BeI_2 : linear EPG and MG, no lone pairs

CBr_2Cl_2 : Tetrahedral for both EPG and MG, lone pairs around outer atoms

AsI_3 : tetrahedral EPG, trigonal pyramid MG, 1 lone pair on As

3. Draw and name the electron-pair geometry and molecular shape for AlF_3 and AlF_4^- . (4 pts)

AlF_3 : trigonal planar for both EPG and MG, no lone pairs

AlF_4^- : tetrahedral for both EPG and MG

4. Determine the formal charge on each atom in the molecule ClF_2^- . (4 pts)

ClF_2^- : EPG is trigonal bipyramid, MG is linear, Cl has 3 lone pairs

Cl: $7 - 6 - 2 = -1$

(both) F: $7 - 6 - 1 = 0$