Problem 20

a) 1 → Slightly less than 109.5°
   2 → Slightly less than 120°

b) 3 → ~ 109.5°
   4 → Slightly greater than 120°

c) 5 → Slightly less than 109.5°
   6 → Slightly less than 109.5°

d) 7 → 180°
   8 → ~ 109.5°

Problem 24

a) \( \text{Ca} \cdot \text{Si} \cdot \text{Ca} \)
   e° Domain geometry = Molecular, Tetrahedral
   Geometry → Non-polar

b) \( \text{I} \cdot \text{F} \)
   Polar

c) \( \text{O} \cdot \text{S} \cdot \text{O} \)
   Net dipole moment
   Polar

d) \( \text{O} \cdot \text{P} \cdot \text{Ca} \)
   Net dipole moment
   Polar

e) \( \text{F} \cdot \text{S} \cdot \text{F} \)
   e° Domain geometry = Molecular, Octahedral
   Geometry → Non-polar

f) \( \text{I} \cdot \text{F} \)
   Net dipole moment
   Polar