

Quiz: Bonding & Molecular Geometry (Ch. 8 & 9)
AP Chem
Version B (30 pts)

Name:
Period (circle one): 6 7
Date:

- (10 pts) Draw the Lewis structure for HCN. Then, draw the orbital overlap that results for each of the following bonds. For each, name and draw the atomic or hybrid orbitals that each atom contributes to the bond and name the type of bond(s) formed (e.g., pi or sigma).
 - Lewis structure
 - Carbon-hydrogen orbital overlap(s)
 - Carbon-nitrogen orbital overlap(s)
- (10 pts) Draw the correct Lewis structure for the following compounds. Include resonance structures if appropriate. For the compound in 1a calculate the formal charge on each atom. For the compound in 1c calculate the oxidation number of each atom.
 - PH₃
 - Cs₂O
 - H₂S (S is more E.N.)
 - NO₂¹⁻

3. (10 pts) Suppose that a molecule has the formula XZ_4 . Draw as many different electron domain/molecular geometries as are possible for this molecule. Limit the drawings to molecules in which the central atom has 6 or less electron domains. Non-bonded pairs need only be included on the central atom.

Then, for each of the geometries you have drawn, record the VSEPR molecular geometry, approximate bond angle(s) as appropriate and hybridization of the central atom. Lastly, state whether the molecule is polar or nonpolar.

<u>Drawing</u>	<u>Molecular Geometry</u>	<u>Bond Angle(s)</u>	<u>Hybridization</u>	<u>P/NP</u>
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