

CHE 255 Phillips
January 25, 2010
In-class exercise

For each of the following molecular formulas, draw valid Lewis structures, any resonance structures, formal charges and hybridization of the indicated atoms, and approximate bond angles as indicated

1. C_2H_2 ; H-C-C bond angle; formal charge of C; hybridization of C
2. NH_2OH ; N-O-H bond angle, formal charge of N; hybridization of N
3. $CH_3CO_2^-$; O-C-O bond angle; formal charge of O; hybridization of C
4. C_6H_6 ; C-C-H bond angle; formal charge of H; hybridization of C

Chapter 1 textbook problems: 1.18, 1.21, 1.24, 1.30, 1.33

Additional concepts for today:

Condensed structural versus bond-line formulas

Comparison of bond angles for methane (109.5°), ammonia (107°), and water (105°)

C-C bond lengths of ethyne C_2H_2 (1.20 Å), ethene C_2H_4 (1.34 Å), and ethane C_2H_6 (1.54 Å)