

General Chemistry I
Problem Set 7
Due Friday, November 5

1. (4 points) Silberberg 15.21
2. (15 points)
Draw and give the systematic name for:
 - a) (6 points) Three different saturated C_6 compounds
 - b) (6 points) Three different monounsaturated C_6 compounds
 - c) (3 points) A polyunsaturated C_6 compound containing the elements Cl and I
3. (6 points) Silberberg 15.27
For each compound that is optically active, circle the chiral center.
4. (6 points) Silberberg 15.33

5. (6 points) The nefarious Dr. Evil is trying (once again) to destroy the world. Trapped in his secret hideout, with the deshaggilizer aimed at your sensitive parts, you know your only hope is to engage him in intellectual banter so as to distract him from killing you and proceeding with his sinister plans. You note that he is staring at a table of boiling points for a series of liquids. He has highlighted two entries and is clearly puzzled by them. Perhaps if you could explain why those two entries buck the trend that is otherwise apparent, he might be interested enough to talk with you. ***Why are the boiling points of the two entries in boldface italics so much higher than one might expect based solely on their molar mass? Use the systematic names of these two compounds in your answer.***

| Chemical Formula | Normal Boiling Point (K) | Molar Mass (g/mol) |
|---|--------------------------|---------------------|
| CH_3CH_2H | 185 | 30.07 |
| $CH_3CH_2CH_3$ | 231 | 44.10 |
| CH_3CH_2F | 236 | 48.06 |
| CH_3CH_2Cl | 289 | 64.51 |
| <i>$CH_3CH_2NH_2$</i> | <i>309</i> | <i>45.08</i> |
| CH_3CH_2Br | 311 | 108.97 |
| CH_3CH_2I | 346 | 155.97 |
| <i>CH_3CH_2OH</i> | <i>350.</i> | <i>46.07</i> |