

# Homework – Chem 30A

(problems are from Tro, 6<sup>th</sup> edition)

## Chapter 1

*These problems can be found on pp. 12-13.*

# 3, 5, 6, 7, 9, 10, 11, 15, 25.

## Chapter 2

*These problems can be found on pp. 51 - 59.*

# 31, 33, 37, 41, 42, 43, 45, 49, 51, 57, 61, 65, 69, 71, 73, 81, 83, 85, 87, 89, 93, 95, 97, 99, 101, 103, 105, 107, 109, 111, 115, 119.

## Chapter 3

*These problems can be found on pp.90-97.*

#3, 4, 6, 7, 8, 10, 11, 12, 13, 31, 33, 35, 37, 39, 41, 43, 51, 57, 61, 65, 69, 75, 77, 79, 81, 85, 93, 113, 115, 116.

## Chapter 4

*These problems can be found on pp. 123-131.*

# 2, 5, 8, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 24, 25, 26, 27, 29, (31 optional), 33, 35, 41, 43, 45, 47, 51, 53, 55, 57, 59, 61, 63, 65, 67, 69, 71, 73, 75, 77, 79, 81, 83, 85, 87, 89, 91, 93, 97, 101, 107, 109, 113, 125d.

## Chapter 5

*These problems can be found on pp. 159-167.*

# 1, 5, 10, 12, 13, 31, 33, 35, 39, 41, 43, 45, 47, 53, 55, 59, 61, 63, 65, 67, 69, 71, 73, 75, 77, 79, 81, 83, 87, 93, 95, 97, 105, 112.

## Chapter 6

*These problems can be found on pp. 197-205.*

# 3, 4, 11ab, 17, 18, 19a, 20a, 25, 27, 29a, 33, 35, 41, 47cd, 51, 55, 59, 63ad, 67ab, 69a, 71, (73 optional), 75, 77, 79a, 81ad, 103, 105, 113.

## Chapter 7

*These problems can be found on pp. 240-247.*

Problem numbers in parentheses are optional but good to do if you want more practice. Don't skip the underlined problems.

# 8, 9, 10, 11, 12, 25, 33, 35, 47, 49, 53, 57, 58, 63, 69, 71, (75), 77, 79, 81, (80, 82), 83, 85, 89, (90), 93, 95, (94, 96), 97, 99

## Chapter 8

*These problems can be found on pp. 274 - 283.*

# 4, 15, 17b, 19, 21bd, 27, 29, 31a, 33d, 35, 39ab, 41, 43, 49ab, 53, 55a, 59, 63, 65, 71, 73, 75, 83, 93

## Chapter 9

*These problems can be found on pp. 316-321.*

# 43, 44, 45, 49, 51, 53, 55, 57, 59, 61, 63, 65, 67, 69, 73, 75, 77, 79, 81, 83, 85, 87, 91, 92, 93, 97, 25, 27 (Yes, the last two are out of order, but it makes more sense to do them afterward.)

## Chapter 10

*These problems can be found on pp. 349-357.*

# 3, 4, 17, 19, 21, 22, 35, 47, 48, 49, 50, 51, 52, 53, 55, 57, 59ac, 12 (yes, it's out of order)

### Additional problem 1:

Draw the Lewis structure for each of the following:

- |                              |                     |
|------------------------------|---------------------|
| a. $\text{SBr}_2$            | f. $\text{SO}_3$    |
| b. $\text{CCl}_4$            | g. $\text{CO}_2$    |
| c. $\text{PBr}_3$            | h. $\text{NO}_2^-$  |
| d. $\text{COCl}_2$           | i. $\text{ClO}_3^-$ |
| e. $\text{CBr}_2\text{Cl}_2$ | j. $\text{OF}_2$    |

### Additional problem 2:

Fill in any lone pairs or multiple bonds, given this skeleton structure. (Give each atom its preferred number of bonds and lone pairs.)

# 61, 63, 65, (66), 67, (68), 69, 71, 73, 75, 79, 81, 83, 85, 87, 89, 91, ~~97, 99~~

**Additional problem 3:** For each of the molecules or ions in additional problem 1, determine the shape, the bond angles, draw a 3-dimensional sketch that shows the shape clearly, and determine whether it is polar or nonpolar.

**Additional problem 4:** Refer to the molecule in additional problem 2. State the shape and bond angle around each of the central atoms in this molecule.

## Chapter 11

*These problems can be found on pp. 399-405.*

# 7, 10, 13, 22, 25, 29, 33, (37), 39, 41, (43), 45, 47, (49), 53, (57), 59, 61, 63, 65 (do the first and the third one), 69, 73, 75, 79, 83b, 85a, 87a, 91, 93, 94, 97, 111, 115.

## Chapter 12

*These problems can be found on pp. 438-443.*

# 1, 13, 16, 17, 23, 24, 25, 28, 30, 33, 34, 37, 43, 47, 49, 55, 57, 59, 61, 63, 65, 67, 69, 71, 75, 76, 77, 79, (81), 83, 85, 87, 93, 95, 97.

Also do the practice problems on intermolecular forces (handout).

## Chapter 13

*These problems can be found on pp. 458-483.*

# 2, 3, 4, 7, 8, 27, 31, 32, 41ab, 47, 49ab, 51ab, 55, 59ab, 61, (63), 65ab, 67ab, 71, 73, 75, 77, 81, 83, 85, 87, 89a, 91, 93, 95, 115, 131, 132, 139bc.

## **Chapter 14**

*These problems can be found on pp. 518-525.*

# 2, 5, 17, 20, 27, 28, 31, 33, 35, 37, 39, 45c, 47a, 48a, ~~49, 50, 51, 52~~, 53, 55ab, 57, 59ac, 61, 63ab, 65ad, 67, 69acd, 71abc, 73ab, 75ab, 77, 79ab, 81ab, 83, 85, 87, 88, 89, 93, 105ab, 107ab.

## **Chapter 16**

*These problems can be found on pp. 600-607.*

# 3, 4, 5, 6, 7, 8, 9, 11, 33ab, 35, 37, 45, 47, 49, 51, 55, 57, 59, 71, 73, 75, 77, 81, 83.

## **Chapter 17**

*These problems can be found on pp. 634-639.*

# 1, 7, 9, 10, 12, 13, 15, 16, 28, 51, 53, 55, 57, 59ab, 61ab, 63ab, 65, 69, 71, 74, 75, 77, 79, 81, 83, 85, 87, 107.