Chem 30B Homework – McMurry – 8th Edition

Answers to the even problems are found at the back of the book, on pages A-7 through A-43. Remember, do not copy the answers from the back of the book or from the solutions manual. Make sure to use your own words for problems requiring explanations.

If you want or need extra practice, feel free to do the unassigned problems.

The first set of homework will be assigned at the end of lecture on Thursday January 23, and will correspond to what we have covered in class up to that point. It will be due on Thursday January 30. It will include some but not all of the Chapter 12 homework problems.

Chapter 12 - Alkanes

These problems can be found on pp. 397-401.

27, 28, 29, 30, 31, 32, 34, 36, 37, 38, 40, 42, 44, 46, 48, 50, 52, 53, 54, 55, 56, 57, 58, 60, 61, 62, 63, 64, 68, 69, 70, 71

Then, do # 22, 23, 24, 25, 26

Chapter 13 - Alkenes, Alkynes, and Aromatic Compounds

These problems can be found on pp. 436-439.

30, 31, 32, 33, 34, 36, 37, 38, 39, 40, 43, 44, 45, 46, 48, 50, 52, 54, 56, 58, 60, 62, 64, 65, 66, 70, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81

Then, do # 24, 25, 26, 28

Chapter 14 - Compounds with O, S, or halogen

These problems can be found on pp. 470-473.

26, 27, 28, 29, 30, 32, (33), 34, 36, 38, 39, 40, 41, 42, 44, 46, 48, 50, 51, 52, 54, 55, 56, 57, 5<u>8</u>, 60, 62, 67, 68, 69

Then, do # 21, 22, 23, 24, 25

If you are using the 7th edition of the book:

The topic of "handedness" or "chirality" has been moved from Chapter 18 (in the 7th edition) to Chapter 14 (in the 8th edition).

If you have the 7th edition of the book, add these problems to your Chapter 14 homework assignment:

Chapter 18, page 583, problems #42, 43, 44, 45, 4<u>6</u>.

Chapter 15 - Amines

These problems can be found on pp. 498-501.

26, 28, 30, 32, 33, 34, 38, 40, 42, 44, 46, 48, 50, 53, 55, 56, 58, 60, 61, 62, 67, 36, 37 (I know these last two are out of order, but it makes more sense this way.)

Note: If you are using an older edition of the book, Aldehydes and Ketones are covered in Chapter 16 instead of Chapter 15.

Chapter 16 - Aldehydes and Ketones

These problems can be found on pp. 519-521.

29, 30, 31, 32, 33, 34, 36, 38, 42, (41), 44, 45, 46, 47, 48, 50, 51, 52, 53, 54, 55, 56, 57, 59, 60, 61

23, 24, 25, 27, 28

If you have an earlier edition of the book, amines are covered in Chapter 15. You would do the Chapter 15 homework instead.

Chapter 17 - Carboxylic acids, Esters, Amides

These problems can be found on pp. 549-553.

38, 40, 42, 43, 44, 46, 47, 48, 52, 54, 55, 56, 58, 60, 62, 64, 66, 67, 70, 72, 74, 76, 78, 79, 81, 83. Interesting but optional: #82

Chapter 18 - Amino Acids and Proteins

These problems can be found on pp. 585-589.

40, 42, 44, 46, 47, 50, 51, 52, 54, 56, 61, 64, 65, 66, 70, 71, 72, 73, 74, 75, 76, 77, 78, 80, 82, 83, 84, 85, 86, 89, 90, 92, 93, 94, 96, 98, 101, 108, 35.

Also do the practice problems on the predominant forms of amino acids (from the handout).

Chapter 19 - Enzymes

These problems can be found on pp. 622-625.

32, 33, 36, 37, 38, 40, 41, 42, 43, 44, 45, 46, 48, 50, 52, 56, 58, 59, 62, 64, (65), 66,
68, 70, 72, 74, 75, 76, 77, 86
and then...
#24, 25, 26, 27, 28, 29, 30, 31.

Chapter 20 - Carbohydrates

If you are using an older edition of the book, carbohydrates might be covered in
Chapter 21 or maybe even Chapter 22.

These problems can be found on pp. 654-657.

21, 29, 30, 31, 32, 36, 38, 39, 44, 45, 46, 47, 48, 49, 50, (51), 56, 57, 59, 60, 61, 62, 63,
64, 66, 67, 70, 74, 78
and then...
#22, 23, 26, 27.

Chapter 21 - The Generation of Biochemical Energy

If you are using an older edition of the book, this topic might be covered in
Chapter 20.

Remember, do not copy the answers from the back of the book or from the
solutions manual. Make sure to use your own words for problems requiring
explanations.

These problems can be found on pp. 686-689.

21, 25, 27, 28, 30, 32, 34, 37 (sketch it), 38, 39, 40, 41, 42, 43, 44, 45, 46, 48, 50, 51,
52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 66, 68, 69, 70, 71, 72, 74, 75, 76, 78, 79, 80,
81, 83.

Chapter 22 - Carbohydrate Metabolism

These problems can be found on pp. 711-713.

22, 23, 24, 25, 26, 27, 30, 31, 32, 33, 35, 36, 40, 45, 46 ,47, 48, 49, 50, 51, 52, 53, 54, 57, 70, 72, 74, 76, 85.

Additional Problems for Chapter 22
(Be able to do this type of problem starting at any point in glycolysis or the citric acid cycle.)

1.   Determine the total number of ATP formed by the complete oxidation of 1 mole of glucose. Show your complete work and/or reasoning. List the steps in which ATP, NADH, and $FADH_2$ are formed, and state how many are formed in each step. Use the "best estimate" values of 2.5 ATP per NADH and 1.5 ATP per $FADH_2$.

2.   Determine the total yield of ATP for the complete oxidation of 1 molecule of 3-phosphoglycerate. Show your work and reasoning, and indicate how many ATP, NADH, and $FADH_2$ are formed and in which steps. Include ATP produced in the electron transport chain. Express your answer as a range.

3.   Determine how many ATP are formed in the complete oxidation of 1 mole of succinate. Include the ATP produced during the electron transport chain. Explain your reasoning clearly, and express your answer as a range.

Chapter 23 - Lipids

These problems can be found on pp. 737-739.

21, 22, 23, 26 - 62 all, 64 - 75 all, 78, 79, 88.

Chapter 24 - Lipid Metabolism

These problems can be found on pp. 759-761.

11-16 all, # 18-29 all, # 31-44 all, #46 – 50 all, 59, 64, 65, 67, 68, 69, 70, 72.

Chapter 26 - Nucleic Acids

These problems can be found on pp. 803-805.

22, # 28-73 all, then #23-27 all.

If you have an older edition of the book, nucleic acids might be Chapter 25.