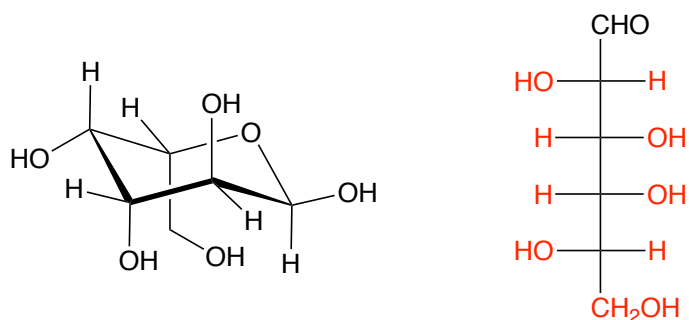


# Organic 2 Exam 3

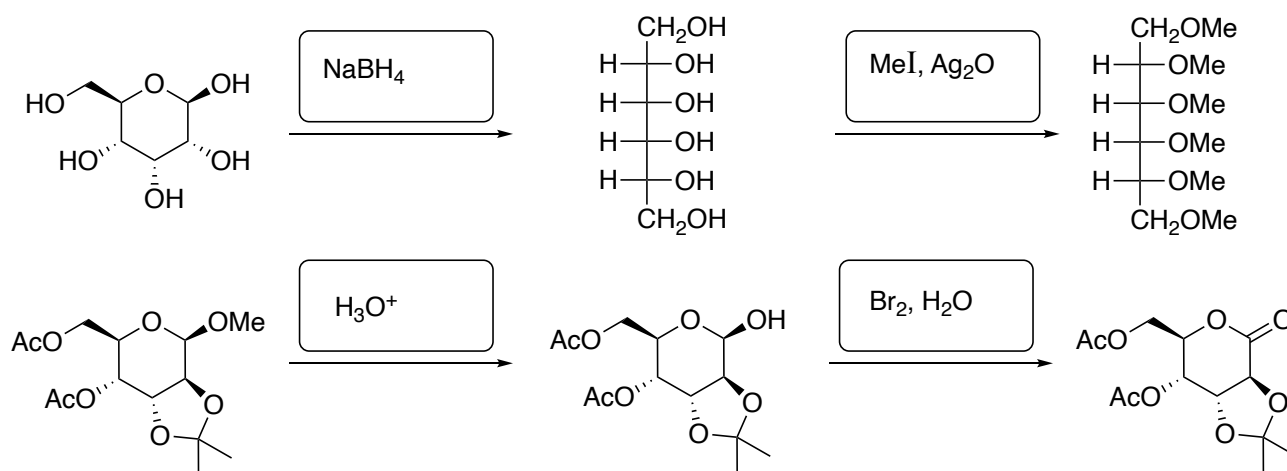
BJM 5/1/2026

Name: Key

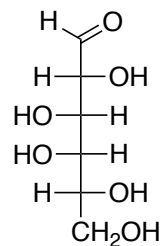
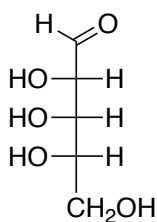
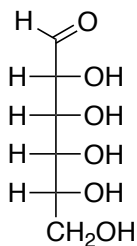
1. (10 points) Using the template given, complete the Fischer projection form for the compound below



2. (8 points) Give an appropriate reagent for each of the following transformations.



3. (9 points) Provide the names for the following carbohydrates.

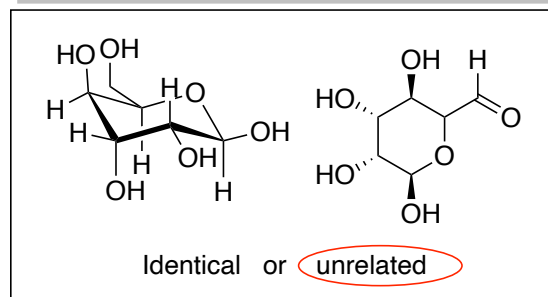
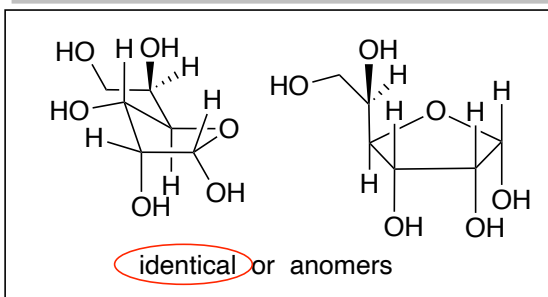
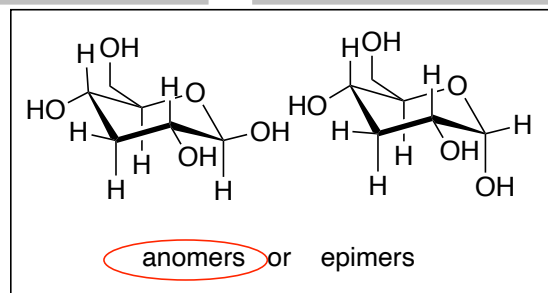
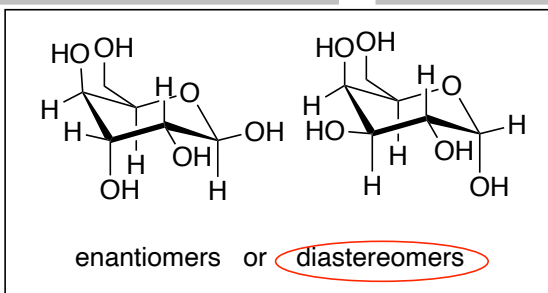
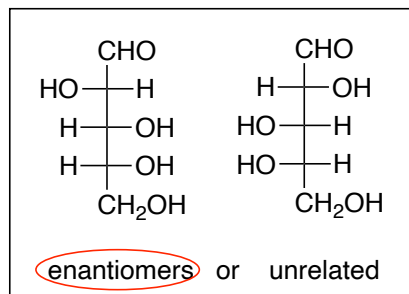
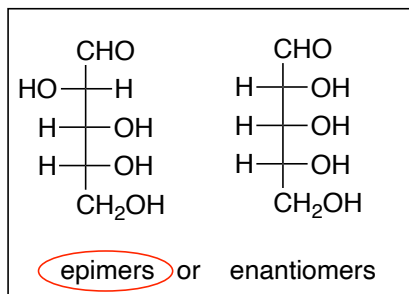
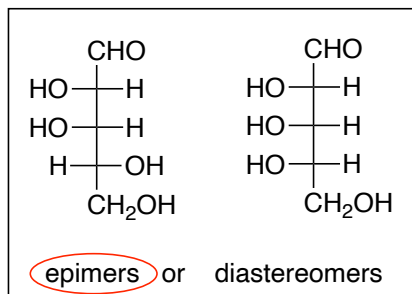


D-allose

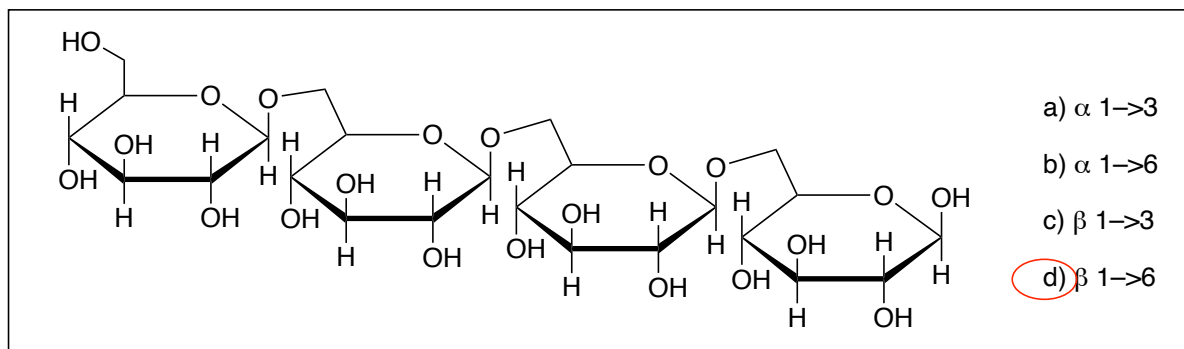
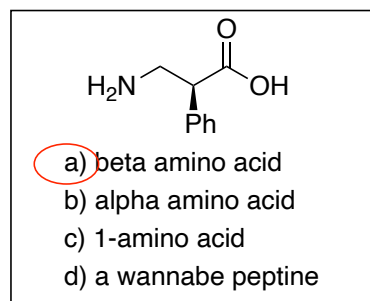
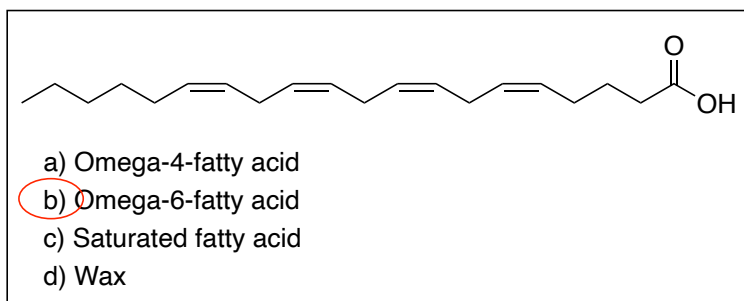
L-ribose

D-galactose

4. (21 points) How are the two compounds in each pair related? Circle the best answer.



5. (9 points) Circle the best answer for each structure.

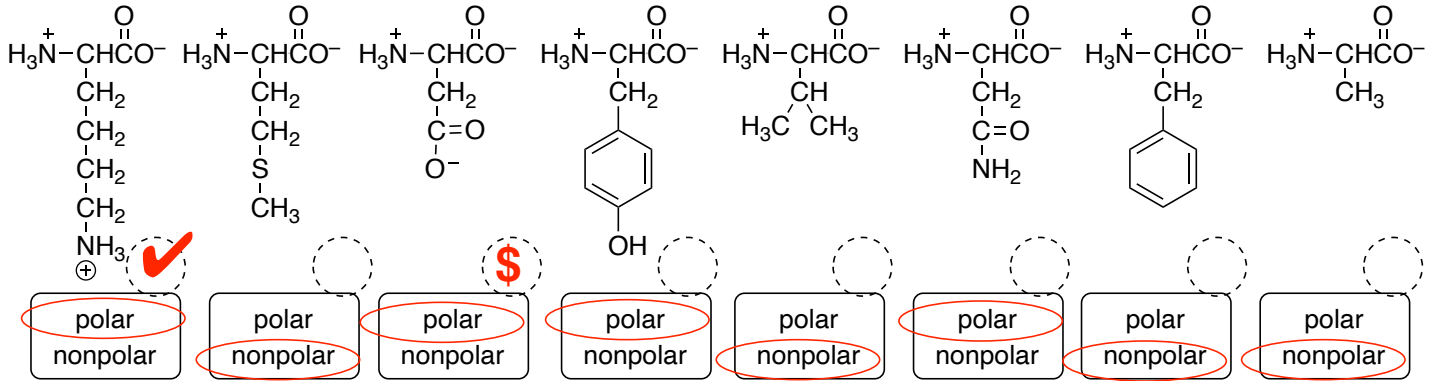


6. (20 points) For the following 8 amino acids,

A. under each, circle whether the side chain makes the amino acid **polar** or **nonpolar**

B. in the dashed circle indicate with a \$ the one amino acid that is considered acidic

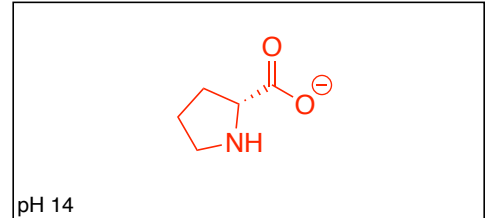
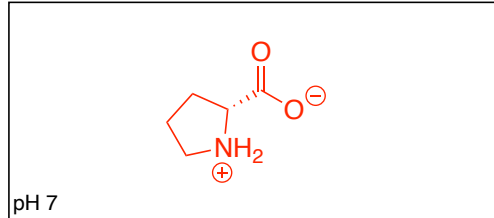
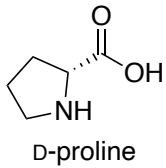
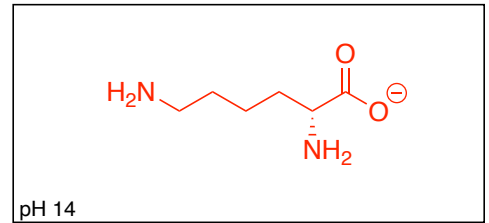
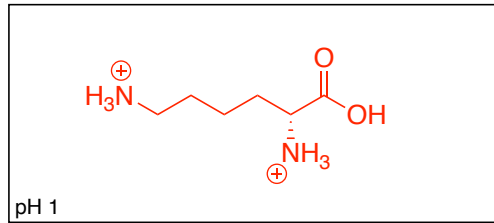
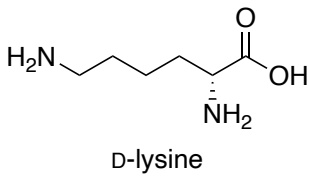
C. in the dashed circle indicate with a ✓ the one amino acid that is considered basic



7. (8 points) A tetrapeptide is given as: Ala-Leu-Tyr-Ser. Put a ✓ next to each of the true statements below.

- The listing of amino acids should be in alphabetical order.
- There are three peptide bonds because there are four amino acids.
- The N-terminus is alanine (Ala).
- The serine (Ser) provides a nitrogen for one of the peptide bonds.

8. (16 points) For each of the amino acid below, draw the form of the amino acid at the given pH values. Assume the isoelectric point is at pH 7 for both. In reality, that is not the case but I am trying not to confuse the issue.



9. (3 points) Proteins tend to assume a specific overall three-dimensional shape. This is referred to as the \_\_\_\_\_ structure of a protein.

- a) quaternary    **b) tertiary**    c) secondary    d) primary

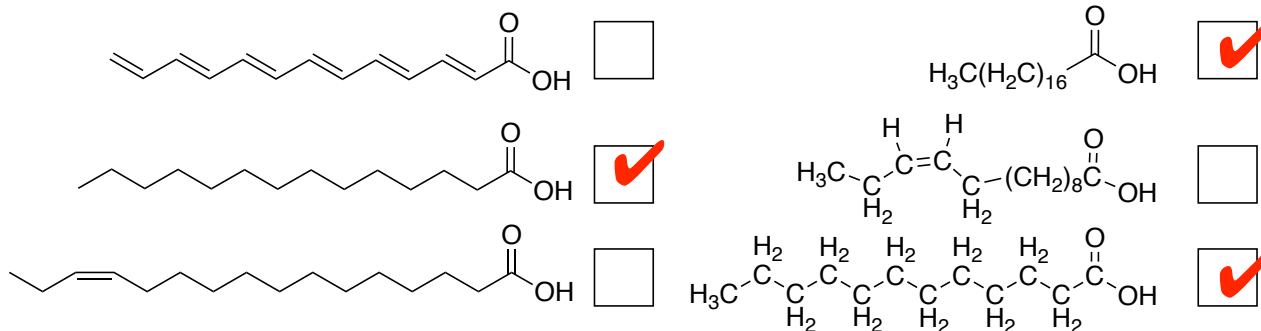
10. (3 points) What level of protein structure is not disturbed by denaturing the protein?

- a) quaternary    b) tertiary    c) secondary    **d) primary**

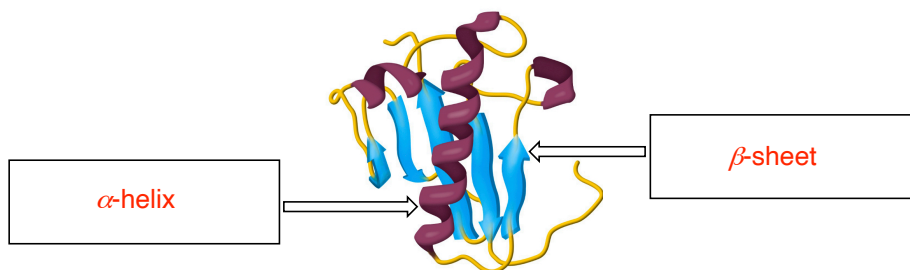
11. (3 points) The enzyme known as alcohol dehydrogenase is capable of oxidizing ethanol, methanol and other alcohol-containing organic compounds into their corresponding aldehydes. Such an enzyme is classified as one with \_\_\_\_\_.

- a) needs for a cofactor    b) absolute specificity    **c) relative specificity**    d) reactivity

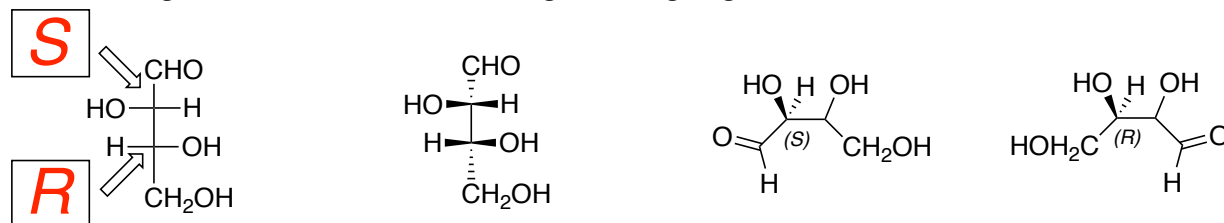
12. (6 points) Put a checkmark next to each of the natural saturated fatty acids.



13. (4 points) Label the parts of the structure below using the terms  $\beta$ -sheet and  $\alpha$ -helix



14. (6 points) Assign the absolute stereochemistry for the stereocenters in the following compound. Note you are encouraged to redraw this before doing the assigning.



15. (9 points) Answer the questions for the following compounds.

<div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 10px auto;"> <math>2^5 = 32</math> </div> <p>How many stereoisomers are possible?</p>	<p>Circle the most acidic hydrogen</p>	<div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 10px auto;"> <b>disulfide bond</b> </div> <p>What is the name of the bond that holds these two cysteines together? hint: covalent is not the answer</p>
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