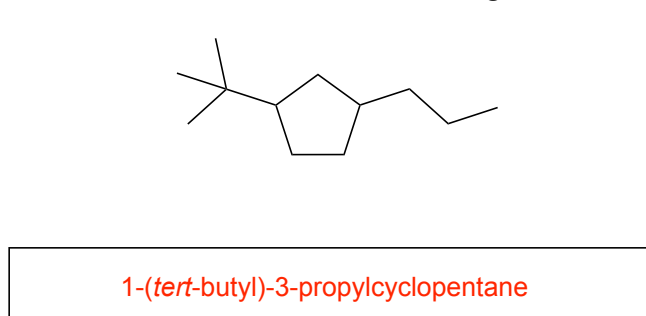
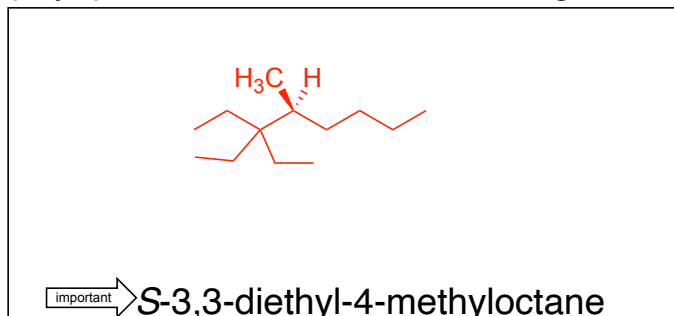


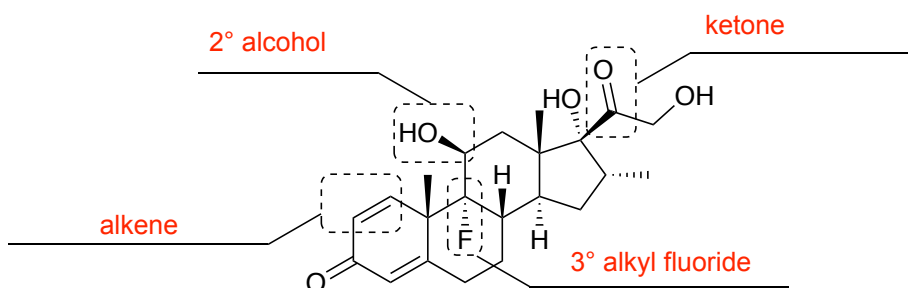
Chemistry 2511: Exam 1 (140 pts), Fall 2024

Name: Key

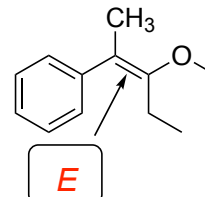
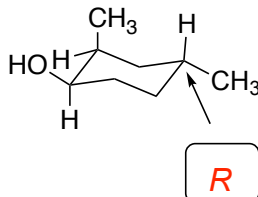
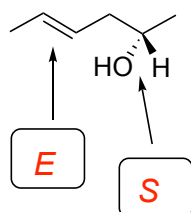
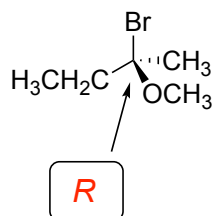
1. (12 pts) Provide the structure for the name given below and the IUPAC name of the structure given



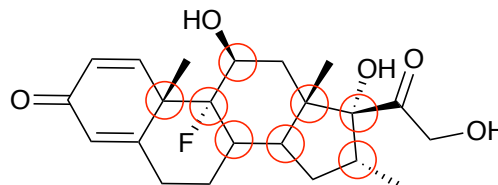
2. (10 pts) Give the full name of the functional groups indicated in dexamethasone (the structure below)
Full name = designation of 1° etc where appropriate.



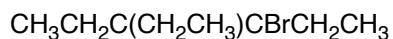
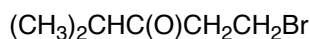
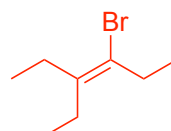
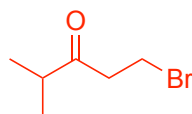
3. (15 pts) Assign the absolute stereochemical configuration (*R* or *S*) or the alkene geometry (*E* or *Z*).



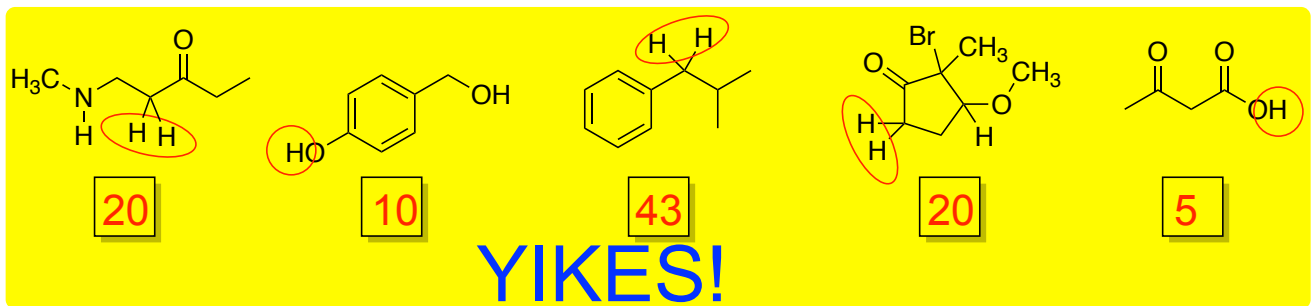
4. (4 pts) There are eight chiral centers in dexamethasone.
Circle them in the structure.



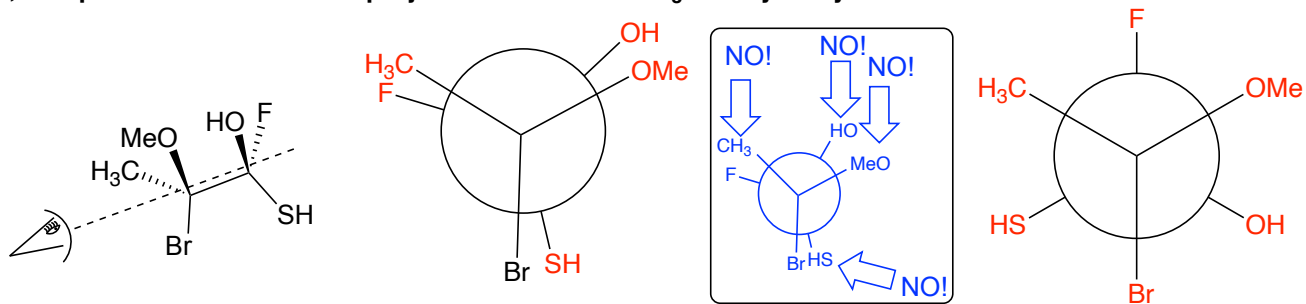
5. (12 pts) Expand the following condensed structures to provide bond-line structures.



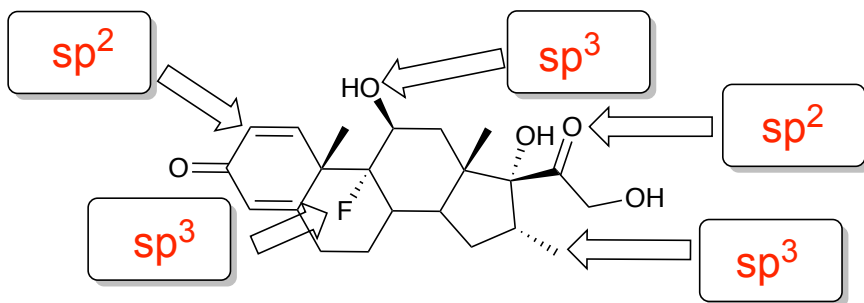
6. (12 pts) Circle or draw in the most acidic proton then provide pKa values for each of the compounds below.



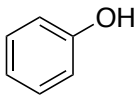
7. (11 pts) Complete the Newman projection along the C2–C3 bond for the structure given below. Then, complete the 2nd Newman projection where the CH₃ and hydroxyl are anti.



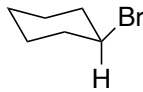
8. (10 pts) Indicate the hybridization of each of the indicated atoms in dexamethasone



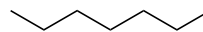
9. (12 pts) Give the molecular formula for the following compounds



C₆H₆O

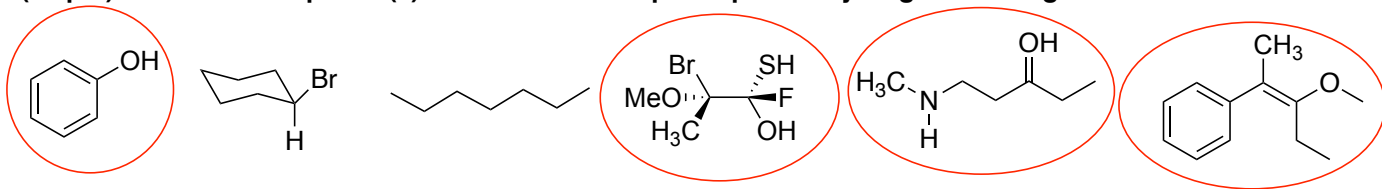


C₆H₁₁Br

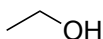


C₇H₁₆

10. (12 pts) Circle the compound(s) below that would participate in hydrogen bonding in an EtOH solution.

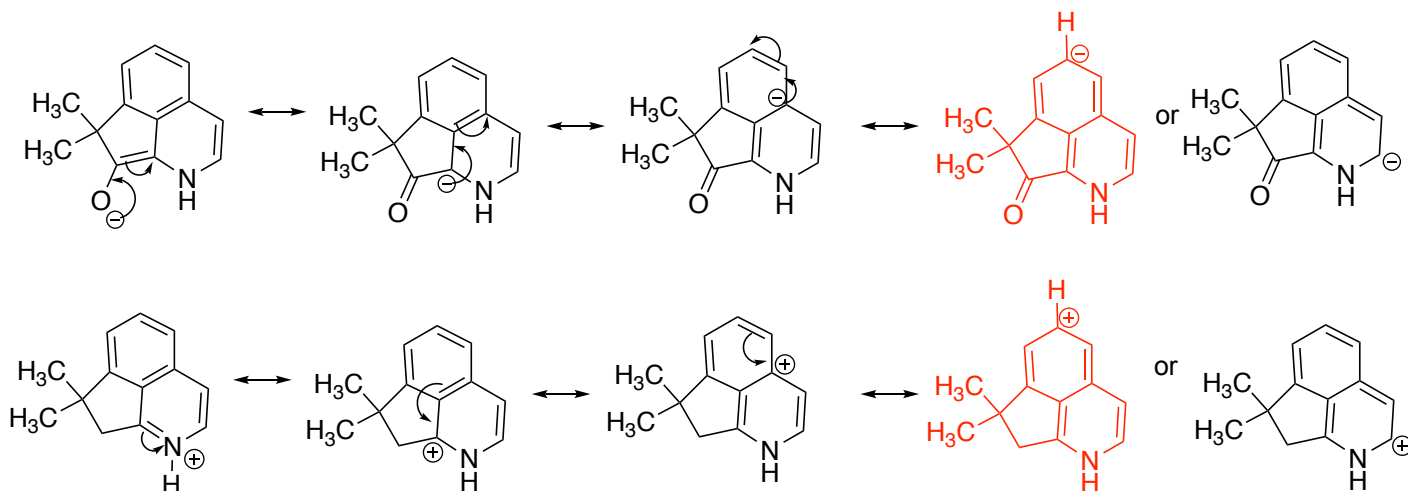


11. (2 pts) Draw the structure of EtOH below.

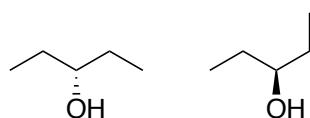


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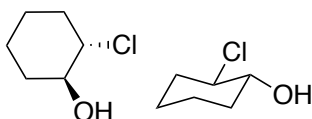
12. (16 pts) CAREFULLY draw in appropriate arrows to finish each of the following resonance structures. Then for fun (aka a couple more points) draw the next resonance structure of each ion.



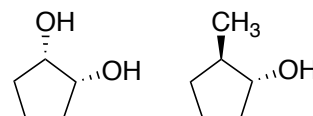
13. (18 pts) For each pair of compounds, label the pair as: unrelated (unrel.)
 identical molecules (Ident.)
 constitutional isomers (const.)
 enantiomers (enant.)
 diastereomers (diast.)
 Note: You may not use all the terms



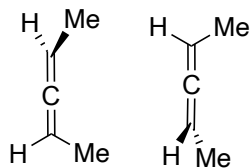
identical



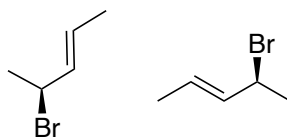
enantiomers



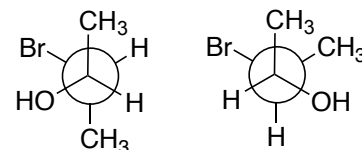
unrelated



identical



identical



enantiomers

Note: You may not use all the terms