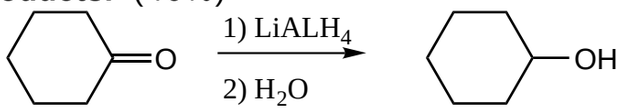
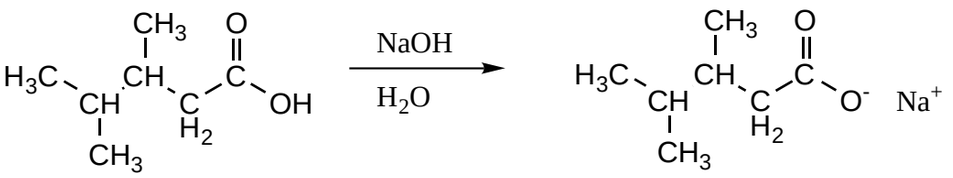
CH 1020 Final Exam May 8, 2001 Answers

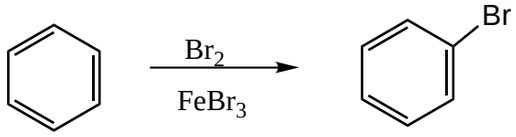
1. Complete the following equations. **Name all organic reactants and products.** (40%)

a. 

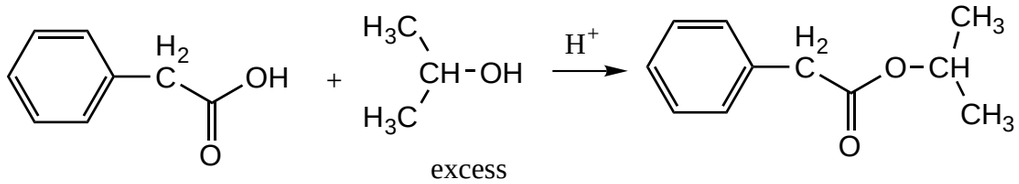
Cyclohexanone Cyclohexanol

b. 

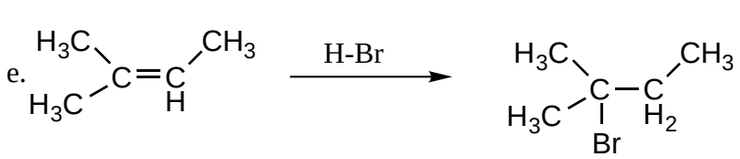
3,4-dimethylpentanoic acid sodium 3,4-dimethylpentanoate

c. 

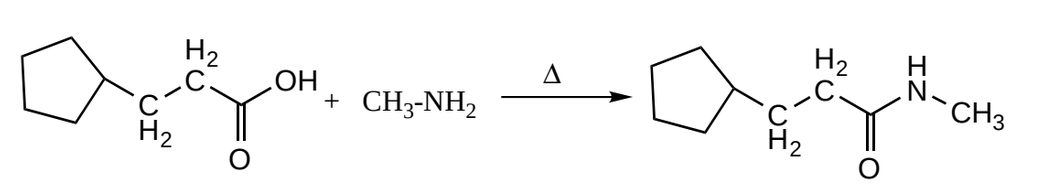
benzene bromobenzene

d. 

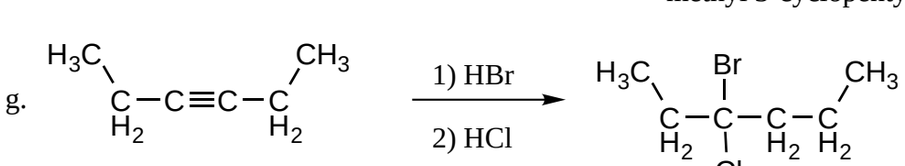
phenylethanoic acid excess 2-propanol isopropyl phenylethanoate

e. 

2-methyl-2-butene 2-bromobutane

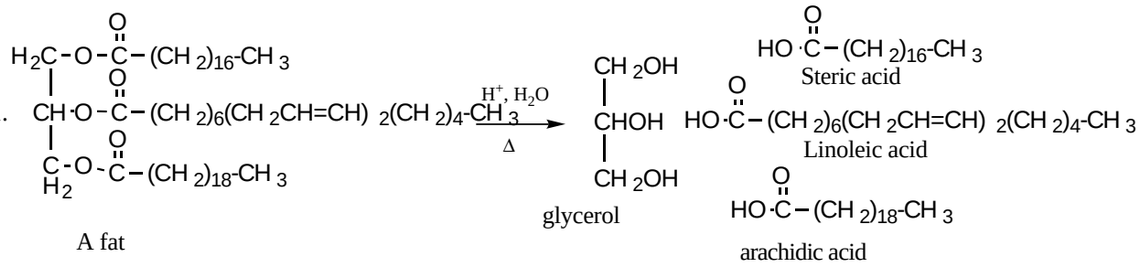
f. 

3-cyclopentylpropanoic acid methyl 3-cyclopentylpropanoamide

g. 

3-hexyne 3-bromo-3-chlorohexane

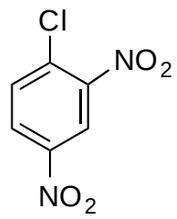
h.



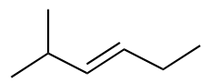
A fat

2. Draw the structures of the compounds whose names are given below. (12%)

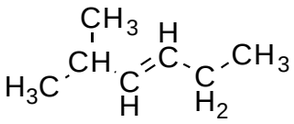
a. 2,4-dinitrochlorobenzene



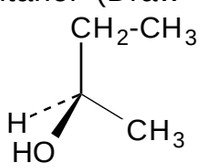
b. *Trans*-2-methyl-3-hexene



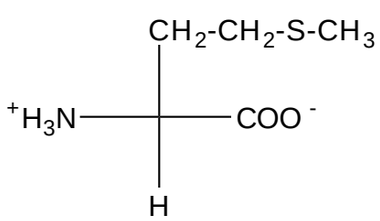
or



c. R-2-pentanol (Draw 3 dimensional structure)

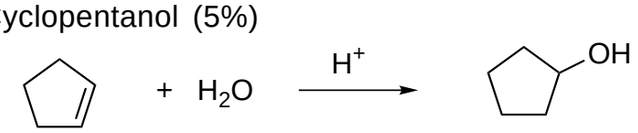


d. S-methionine in it's zwitterionic form (Draw Fischer projection)

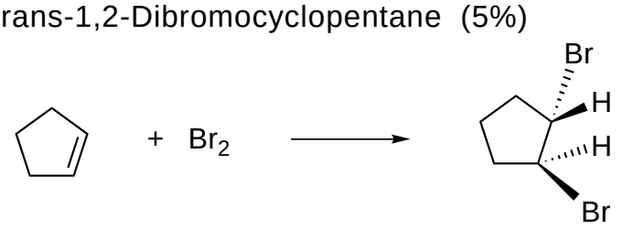


3. Start with cyclopentene and write an equation for the preparation of:

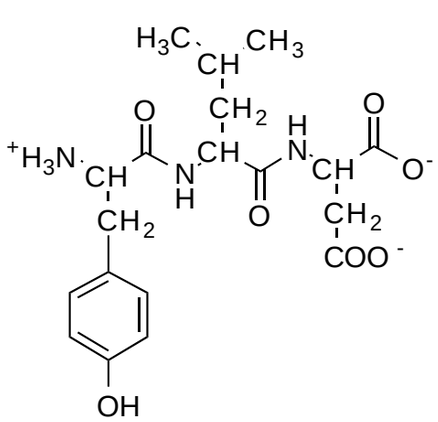
a. Cyclopentanol (5%)



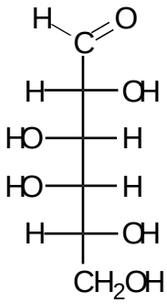
b. Trans-1,2-Dibromocyclopentane (5%)



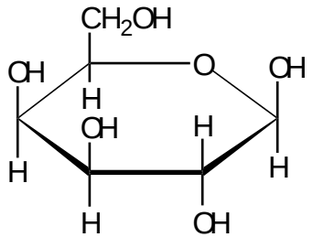
4. Draw the structure of the tripeptide Tyr-Leu-Asp that would be present at physiological pH. (7%)



5. For the carbohydrate whose Fischer projection is given by **A**, depict the β form of the cyclic hemiacetal by adding appropriate H or OH groups in cyclic sturcture **B**. (5%)

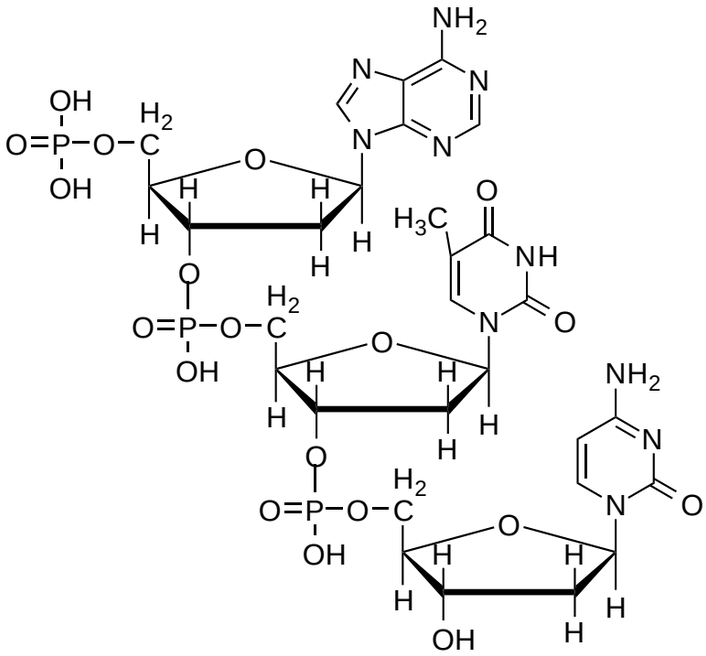


A

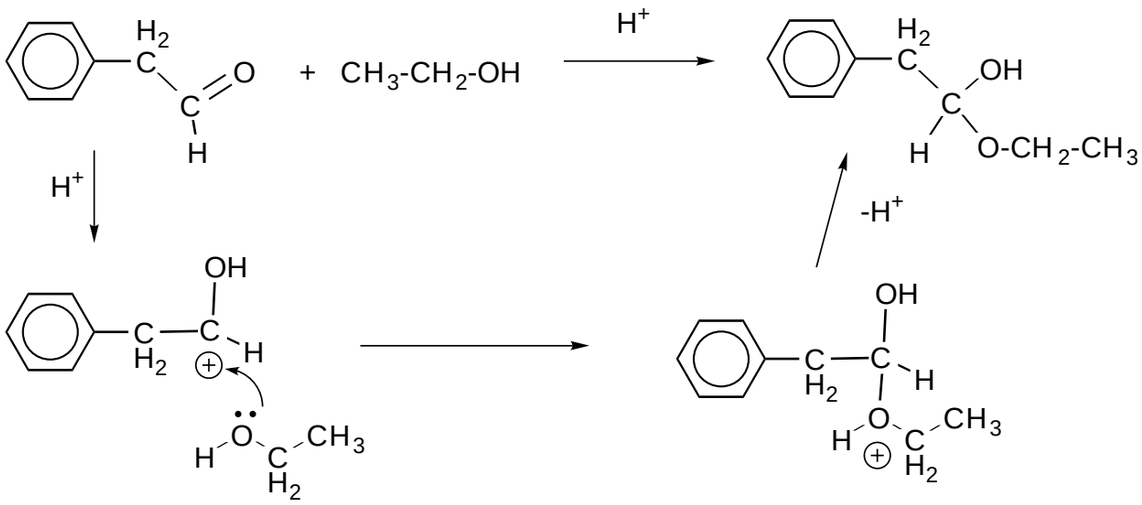


B

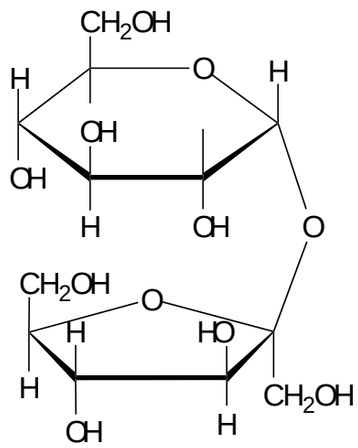
6. Draw the structure of a trinucleotide of structure A-T-C (reading from 5' to 3' end). (7%)



7. Write the mechanism for the reaction shown below. (7%)



8. Sucrose has D-glucose and D-fructose bonded by an α linkage to the 1 carbon of glucose and a β linkage to the 2 carbon of fructose (that is an α,β(1->2)-glycosidic linkage. Draw sucrose. (7%)



Fructose

9. Below are depicted 4 base pairs of a DNA strand. Using these base pairs as an example show how this DNA strand could replicate itself to two identical strands. (5%)