

**Exam 5: Chapters 17 and 18**

All answers should be written on the exam in the spaces provided. *Clearly* indicate your answers in the spaces provided; if I have to guess as to what or where your answer is, it is wrong. Where applicable, outline the logic or mystical principle you used to arrive at your answer, as partial credit may be awarded for correct approaches.

You may assume that standard work-up conditions (i.e. those required, such as aqueous acid, to obtain a stable, neutral product for a reaction like the Grignard addition or reductions using lithium aluminum hydride) follow each reaction on the exam. Clearly indicate stereochemistry where appropriate. Be careful not to show stereochemistry where none exists.

You are strongly advised to read through the entire exam completely before beginning.

(1)..12 pts.....\_\_\_\_\_

(2)..10 pts.....\_\_\_\_\_

(3)..18 pts.....\_\_\_\_\_

(4)..16 pts.....\_\_\_\_\_

(5)..12 pts.....\_\_\_\_\_

(6)..15 pts.....\_\_\_\_\_

(7)..10 pts.....\_\_\_\_\_

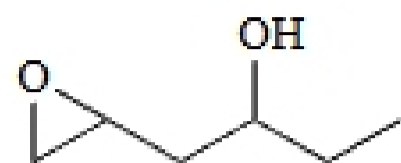
(8)..16 pts.....\_\_\_\_\_

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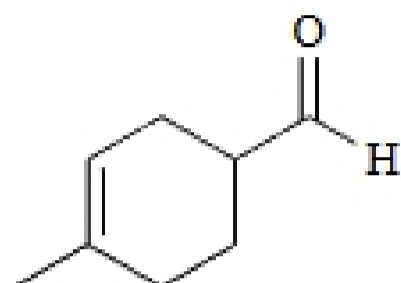
TOTAL (109 pts).....\_\_\_\_\_

Percentage.....\_\_\_\_\_

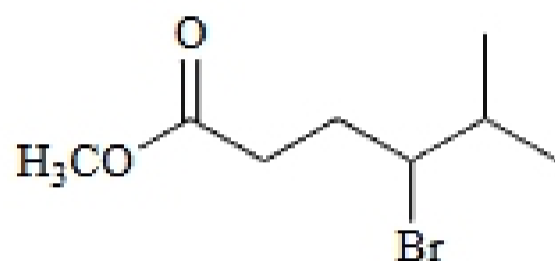
1. (12 pts) Each molecule shown below has two types of functional groups. Name them (i.e. alkyl halide, alcohol, ether, ketone, etc).



alcohol, epoxide

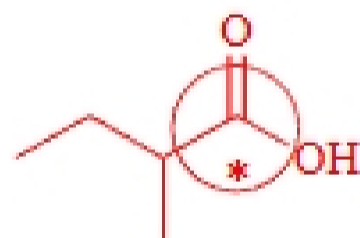
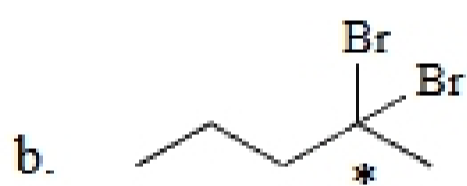
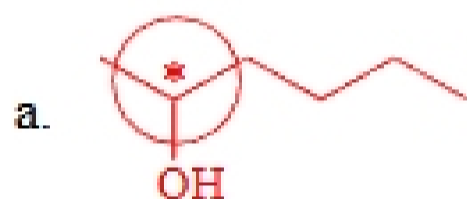


aldehyde, alkene



alkyl halide, ester

2. (10 pts) For each pair of compounds, circle the one at the higher oxidation state:



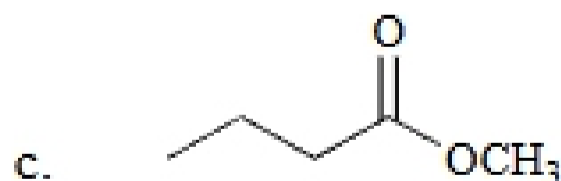
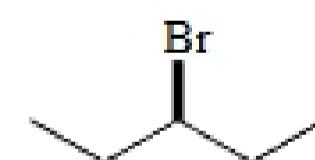
For each transformation shown, label as an oxidation, a reduction or neither:



reduction



neither

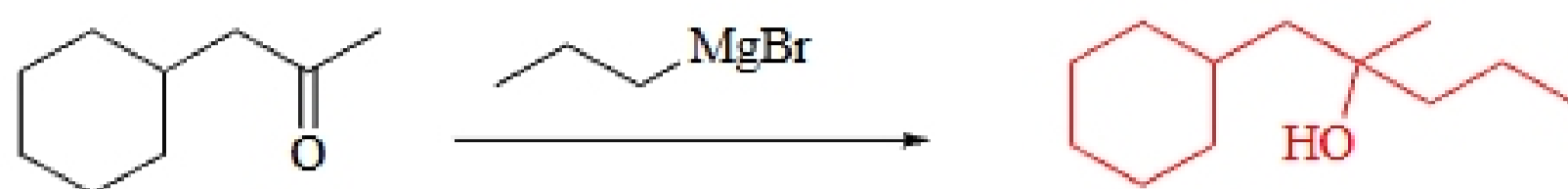


reduction

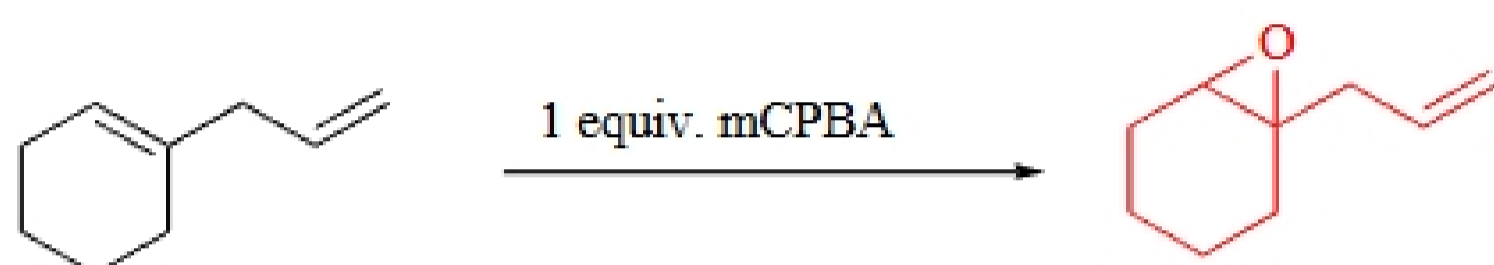


3. (18 pts) Indicate the major product formed or reagent necessary to do the desired transformations in each of the following reactions. You may assume standard conditions to achieve a neutral stable product.

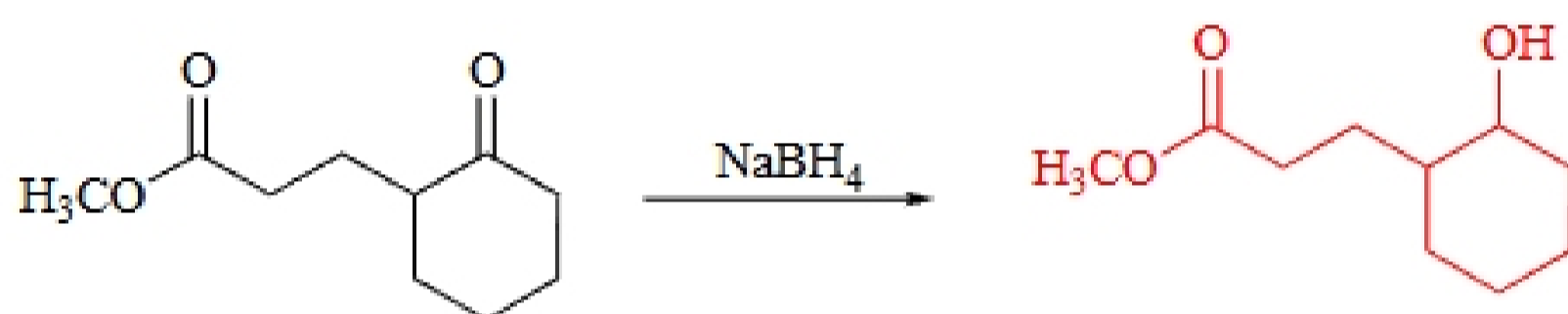
(a)



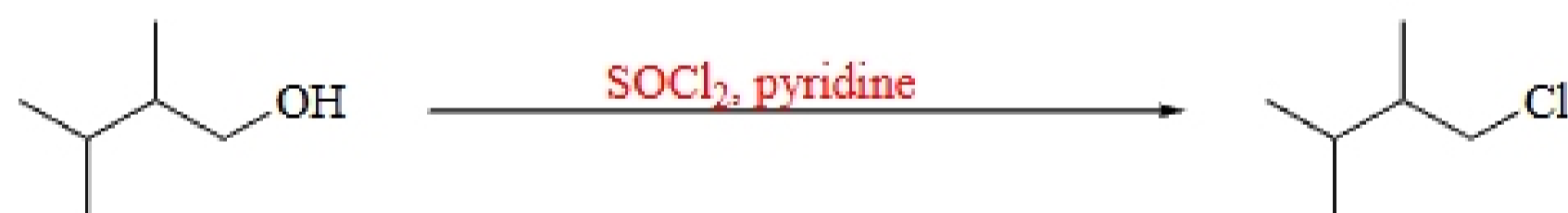
(b)



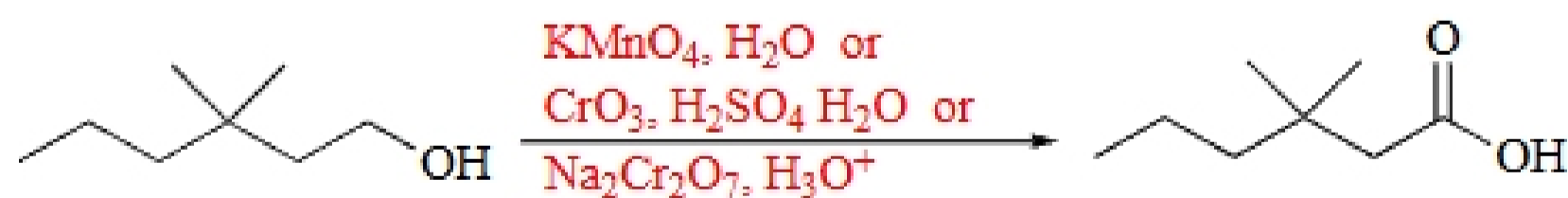
(c)



(d)



(e)



(f)

