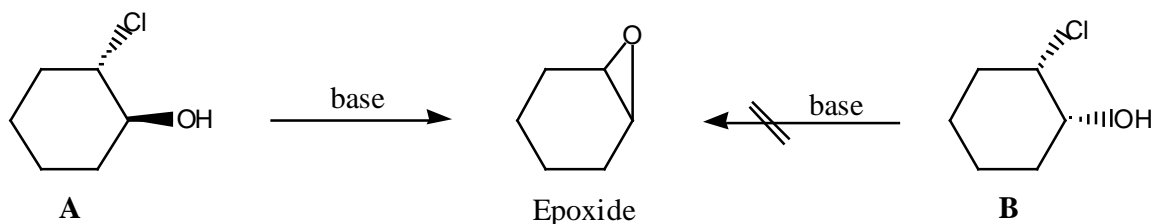


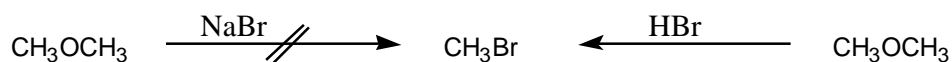
Problem Set #6
CH241-2001F

[1] Explain the following observations.

(a) Compound **A** gives an epoxide upon treatment with a base but **B** does not.

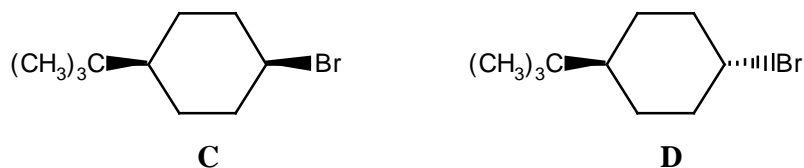


(b) To prepare bromomethane from dimethylether, one needs to use HBr instead of NaBr.

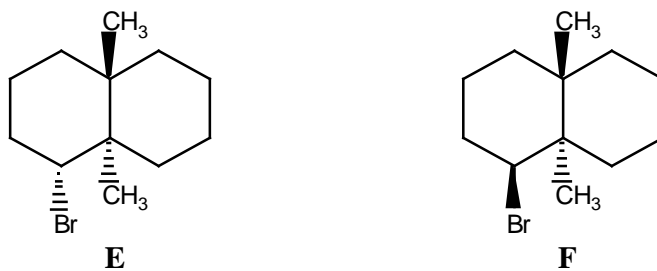


(c) Optically active (*R*)-2-iodopentane racemizes when stirred in a solution of sodium iodide in acetone.

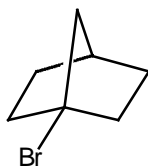
(d) The S_N1 reaction of **C** is faster than that of **D**.



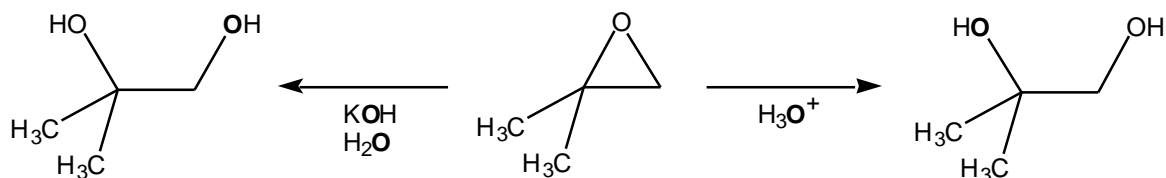
(e) The E2 reaction of **E** is slower than that of **F**.



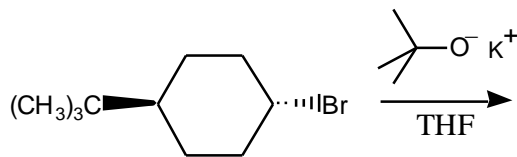
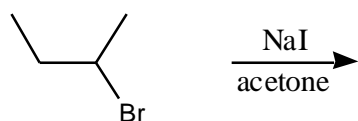
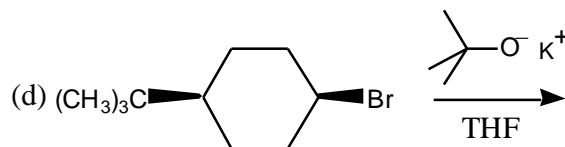
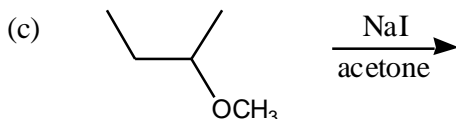
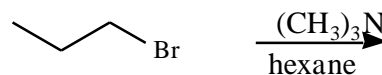
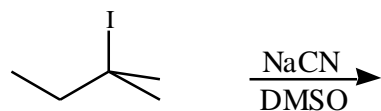
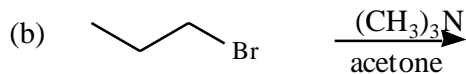
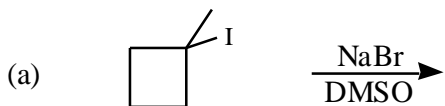
(f) The following compound is notoriously resistant toward S_N2 , S_N1 , E_1 , and E_2 reactions.



- [2] An inquisitive organochemist, Reggie O'Kemist, decided to study the ring opening reaction of 2,2-dimethyloxirane with some fancy labeling experiments. He was amused when he found out that the position of the ^{18}O label in the product diol depended on whether the reaction was done in acid or base. His reaction conditions are given below. Rationalize the results. (The oxygen in bold is ^{18}O .)



- [3] Predict which reaction in each pair given below is faster. For the faster reaction, write the product(s) and identify the mechanism involved.



- [4] Propose reasonable mechanisms for the following reactions.

