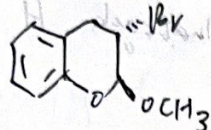


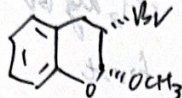
7. (a)

A:

(+3)



+2



\therefore l.p. of O will attack Br beside it and Br leaves

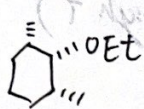
\therefore it is S_N1 rxn. \Rightarrow racemate (partially)

(\therefore in weak base \therefore Br on top can't react, due to 2° alkyl halide)

(b)

B:

(+2)



+2

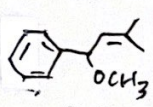
\therefore it can't undergo anti: elimination due to 2 methyl group beside.

\therefore undergo S_N2 (strong base and 2° alkyl halide)

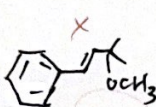
(c)

C:

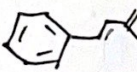
(+1)



① (has En.)



②



③

+1

\therefore benzyl will stabilize the charge formed after Cl leaves

\therefore it can undergo S_N1 forming ①, ② and also undergo E1 forming ③.

(d)

D:

(+3)



\therefore bulky Nu. (or base) \therefore undergo E2 (strong base)

\therefore bulky \therefore can't form due to steric hindrance.

(e)

E:

(+3)

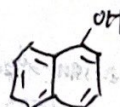


\therefore F is poor LG and big E.N. \therefore it will form carbanion-like transition state which less substituted form is more stable.

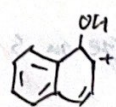
(f)

F:

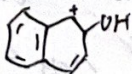
(+3)



intermediate



positive charge can reduce by double bond



positive charge can reduce by benzene but need to broke aromatic \Rightarrow less stable

(g)

G:

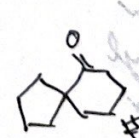
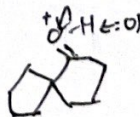
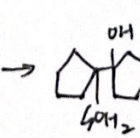
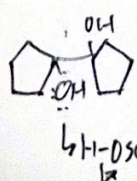
no rxn.

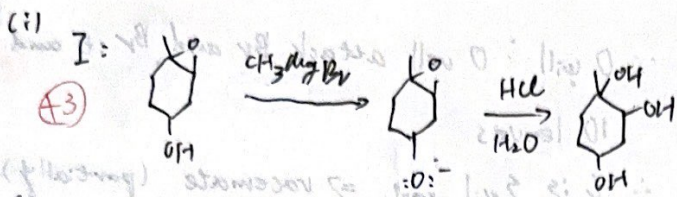
\therefore Grignard reagent can't undergo when R group is 2° or 3° alkyl halide

(h)

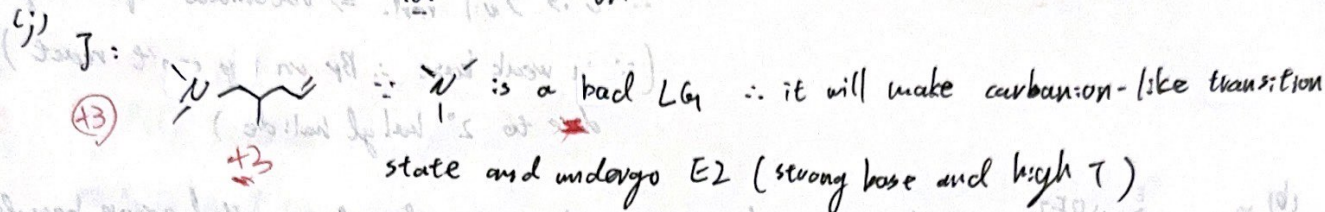
H:

(+3)





CH_3MgBr will eliminate H on -OH first.



8. (a) K: 1) excess CH_3I K_2CO_3
2) Ag_2O H_2O
3) Δ

- 4) 9-BBN
5) H_2O_2 H_2O OH^-

- (b) L: 1) NH_3^-
2) Br_2 DCM
3) 3 NH_3^-
4) Br
5) H_2 Lindlar's cat.
6) mCPBA

- (c) M: 1) CH_3MgBr / $\text{N: Me}_2\text{CuLi}$
2) HCl

- (d) O: 1) TsCl pyridine / P: POCl_3 pyridine 0°C / Q: 1) mCPBA
2) OCH_3 / 2) OH^-
3) HCl

9. $\text{S}^- > \text{O}^- > \text{C}=\text{O}^-$ \therefore The charge on S is more delocalized \therefore ion-dipole interaction less
 $\Rightarrow \text{S}^-$ is the most reactive in protic polar solvent (MeOH)

(+) $\text{pKa of } \text{ROH} > \text{HOH} \therefore \text{basicity} = \text{O}^- > \text{C}=\text{O}^-$

\Rightarrow nucleophilicity: $\text{O}^- > \text{C}=\text{O}^-$

10. \therefore its R group is fixed, which won't cause as much as steric hindrance as dipropyl ether

