

Daily Tutorial Sheet-9	Level-2
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106.(A) Visualise pinnacol-pinnacolone rearrangement. 1st focus on stability of initial carbocation and then visualise ring expansion (migration).

107.(B) OH OH OH Ph
$$H^+$$
 Ph H^+ Ph H^- Ph Ph Ph Ph H^- Ph

2 moles of HI are used above. So a total of 3 mol of HI are used. Note that phenol formed in the first reaction does not react with HI.

- **108.(B)** Esterification will occur at less hindered –OH group.
- 109.(B) $Me_2CH O CMe_3 \xrightarrow{HI \text{ (conc)}} Me_2CH O \xrightarrow{P} CMe_3 \xrightarrow{S_N1} Me_2CHOH + CMe_3 \xrightarrow{\Gamma} Me_3C I$

Path is clearly $S_N 1$ type.

110.(C)
$$CH_3 - CH - OH \xrightarrow{PBr_3} CH_3 - CH - Br \xrightarrow{Mg} (CH_3)_2 CHMgBr + CH_2 - CH_2$$

$$CH_3 \qquad CH_3 \qquad (CH_3)_2 CH - CH_2 - CH_2 OH \xrightarrow{H_2O}$$

111.(C) Visualise base (Nu^-) catalysed ring opening i.e., consider steric factors.

$$Et - MgBr + CH_2 - CH - CH_3 \xrightarrow{Et_2O} Et - CH_2 - CH - CH_3 \xrightarrow{H_2O} Et - CH_2 - CH - CH_3 \xrightarrow{OMgBr} OH$$

112.(BD)
$$\begin{array}{c|c} & & & \\ & &$$

(Resonance stabilised)

(A) ONa +
$$CH_3CH_2Br$$
 O - CH_2CH_3 (True) alkoxide as Nu^- (1°)

(B)
$$Br + CH_3CH_2ONa \xrightarrow{E2}$$
 (False)



(C)
$$OH + CH_2N_2/HBF_4$$
 OCH_3 (True)

(D) $OH + CH_3OH$ H^+ $O - CH_3$ (True)

$$\textbf{114.(AB)} \qquad \text{C_2H}_5\text{OC}_2\text{H}_5 + \text{PCl}_5 \longrightarrow 2\text{ C_2H}_5\text{Cl} + \text{POCl}_3$$

115.(ABD)
$$R\overline{O}Na^+ + R'X \longrightarrow R - O - R' + NaX$$

A, B and D options are clearly correct, however (C) is not correct. Alkoxides are good bases and equally good nucleophiles. In case of 3° and 2° alkyl halides, these give E2 products (i.e., alkenes).