Alcohol, Phenol and Ether

1.
$$CH_3 - CH - CH_3 \xrightarrow{PB_{0}} A \xrightarrow{M_{g}} B \xrightarrow{CH_2 - CH_2} C$$

 OH
 $\xrightarrow{H_{2O}} D$ Here, D is [BVP 2004]
(a) $CH_3 - CH - O - CH_2 - CH_3$
 CH_3
(b) $CH_3 - O - CH - CH_2CH_3$
 CH_3
(c) $CH_3 - CH - CH_2CH_2OH$
 CH_3
(d) $CH_3 - CH_2 - CH_2OH$
 CH_3
2. Phenol is more acidic than [Pb. CET 2003]
 $(C) C_2H_2$ (d) Both (a) and (c)
(e) C_2H_2 (d) Both (a) and (c)
9.
(f) $C_{H_3}CH_2 - CH_2OH_3$
(h) $CH_3 - CH_2 - CH_3 - CH_3CH_3$
(h) $CH_3 - CH_2 - CH_2OH_3$
(h) $CH_3 - CH_2 - CH_3 - CH_3CH_3$
(h) $CH_3 - CH_2 - CH_3 - CH_3 - CH_3CH_3$
(h) $C_{H_3}CH_3 - CH_3 - CH_3CH_3 - CH_3CH_3$
(h) $C_{H_3}CH_3 - CH_3 - CH_3CH_3 - CH_3CH_3$
(h) $C_{H_3}CH_3 - CH_3 - CH_3CH_3 - CH_3CH_3$

- commercial method for the manufacture of
phenol. Cumene is**[KCET 2004]**(a) 1-methyl ethyl benzene(b)Ethyl benzene(c) Vinyl benzene(d) Propyl benzene
- 7. The compound X in the reaction [Roorkee 1999]



Self Evaluation Test -26



The order of solubility of alkanols in water is

(b)

- (a) Propanol < Butanol > Pentanol
- (b) Propanol > Butanol > Pentanol
- (c) Propanol > Butanol < Pentanol
- (d) Propanol = Butanol = Pentanol

11. In the following compounds

(a)



The order of acidity is [IIT-JEE 1996] (a) III > IV > I > II(b) I > IV > III > II(c) II > I > III > IV(d) IV > III > I > IIButanal with dilute *NaOH* gives [UPSEAT 2000] 12. OH(a) $CH_3CH_2CH_2CH_2CH_2CH_2CH_2CH_2CH_2$ (b) $CH_3CH_2CH_2 \overset{\parallel}{C}CH_2 CH_2CH_2CHO$ (c) $OHCCH_2CH_2CH_2CH_2CH_2CH_2CH_2CH_2$ OH(d) $CH_3CH_2CH_2CH_2CH_2CH_2CH_2CH_2CHCHO$ H CH₂ CH 2 The correct order of the solubility of the different 13.

alcohols in water is [Pune CET 1998] (a) *n*-propyl alcohol > ethyl alcohol > *n*-butyl alcohol

(b) Ethyl alcohol > n-butyl alcohol > n-propyl alcohol

(c) n-butyl alcohol > n-propyl alcohol > ethyl alcohol

(d) Ethanol > *n*-propanol > *n*-butyl alcohol

 Which one of the following will most readily be dehydrated in acidic condition[IIT-JEE (Screening) 2000]



(c)

 Which of the following compounds will be most easily attacked by an electrophile[CBSE PMT 1998, 99]

(d)



- **16.** Fittig's reaction produces
 - (a) Alkane (b) Alcohol
 - (c) Diphenyl (d) Diethyl ether
- **17.** p-cresol reacts with chloroform in alkaline medium to give the compound A which adds hydrogen cyanide to form, the compound B. The latter on acidic hydrolysis gives chiral carboxylic acid. The structure of the carboxylic acid is









1. (c) The reaction sequence is as follows $CH_3 - CH - CH_3 \xrightarrow{PBr_3} CH_3 - CH - CH_3 \xrightarrow{M_g} CH_3 - CH_3 \xrightarrow{M_g} CH_3 \xrightarrow{M_g}$

$$(CH_{3})_{2}CH.CH_{2}CH_{2}OMgBr \xrightarrow{H_{2}O}_{-Mg(OH)Br} (CH_{3})_{2}CH.CH_{2}CH_{2}OMgBr \xrightarrow{H_{2}O}_{-Mg(OH)Br} (CH_{3})_{2}CH.CH_{2}CH_{2}OH \xrightarrow{[D]}_{\text{isopenty lalcohol}} (CH_{3})_{2}CH.CH_{2}CH_{2}OH$$

- 2. (d) Methoxy group due to +*I* effect increase electron density on *OH* group, thus making it less acidic. Thus *o*-methoxy phenol and acetylene are less acidic than phenol, *p*-nitrophenol is more acidic than phenol
- 3. (b) Perkin reaction is the condensation reaction in which an aromatic aldehyde is heated with an aromatic aldehyde is heated with an anhydride of an aliphatic acid in presence of sodium salt of same acid to form α , β unsaturated acid.

$$\begin{array}{c} C_6H_5CHO + (CH_3CO)_2O \xrightarrow{CH_3COONa} \\ \text{Benzaldehy de} & \text{acetic anhy dride} \end{array}$$

$$C_6H_5CH = CHCOOH + CH_3COOH \\ \text{cinnamic acid} & \text{acetic acid} \end{array}$$

4. (b) The correct order of stability of carbocation is as follows



5. (b) PCl_5 is used in organic chemistry to replace the -OH group by -Cl and carbonylic oxygen by $(-Cl_2)$.





It is Kolbe's reaction.





- (b) Propanol > Butanol> Pentanol
 The solubility of alcohols in water decreases as the molecular mass increases. As the size of alkyl group increases, hydrophobic character increases, Hence solubility decreases.
- 11. (d) IV > III > I > II. $-NO_2$ group is electron withdrawing group while $-CH_3$ group is electron releasing group.

12. (d)
$$2CH_3 - CH_2 - CH_2 - CHO + \text{dil. } NaOH \rightarrow$$

 $OH CHO$
 $CH_3CH_2CH_2 - CH - CH_2 - CH_3$
 H

- 13. (d) Ethanol > n-propanol > n-butyl alcoholSolubility of alcohols in water decreases as the size of alkyl group increases because tendency to form hydrogen bonding decreases.
- 14. (a) Aldols (β -hydroxy aldehydes or β -hydroxy ketones) readily undergo dehydration to form α , β -unsaturated aldehydes or ketones.



- 15. (c) Phenol is most easily attacked by an electrophile because presence of -OH group increases electron density at o- and p-positions.
- 16. (c) $2C_6H_5Cl + 2Na \xrightarrow{\text{Dry}} C_6H_5 C_6H_5 + 2NaCl$ diphenyl

