Chapter

25

Alcohols, Phenols and Ethers

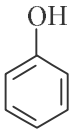
1. The heating of phenyl methyl ether with HI produces

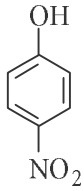
(a) iodobenzene (b) phenol

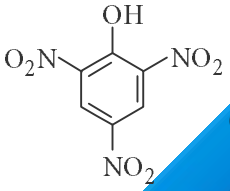
(c) benzene (d) ethyl chloride.

(NEET 2017)

2. Which one is the most acidic compound?

(a) 

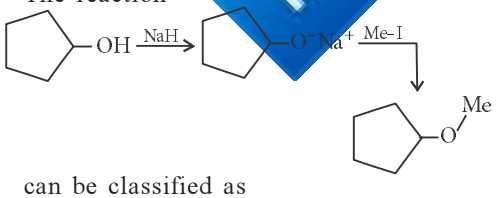
(b) 

(c) 

(d) 

(NEET 2017)

3. The reaction



can be classified as

(a) dehydration reaction

(b) Williamson alcohol synthesis reaction

(c) Williamson ether synthesis reaction

(d) alcohol formation reaction.

(NEET-I 2016)

4. Reaction of phenol with chloroform in presence of dilute sodium hydroxide finally introduces which one of the following functional group?

(a) –COOH (b) $-CHCl_2$

(c) –CHO (d) $-CH_2Cl$ *(2015)*

5. Which of the following reaction(s) can be used for the preparation of alkyl halides?

(I) $CH_3CH_2OH + HCl \xrightarrow{Anh.\ ZnCl_2}$

(II) $CH_3CH_2OH + HCl \longrightarrow$

(III) $(CH_3)_3COH + HCl \longrightarrow$

(IV) $(CH_3)_2CHOH + HCl \xrightarrow{Anh.\ ZnCl_2}$

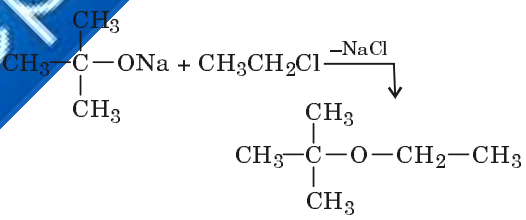
(a) (I) and (II) only

(b) (IV) only

(c) (III) and (IV) only

(d) (I), (III) and (IV) only *(2015)*

6. The reaction,



is called

(a) Etard reaction

(b) Gattermann-Koch reaction

(c) Williamson synthesis

(d) Williamson continuous etherification process. *(2015, Cancelled)*

7. Among the following sets of reactants which one produces anisole?

(a) CH_3CHO ; $RMgX$

(b) C_6H_5OH ; NaOH ; CH_3I

(c) C_6H_5OH ; neutral $FeCl_3$

(d) $C_6H_5CH_3$; CH_3COCl ; $AlCl_3$ *(2014)*

8. Which of the following will not be soluble in sodium hydrogen carbonate?

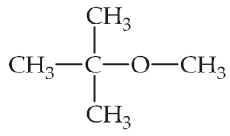
(a) 2,4,6-Trinitrophenol

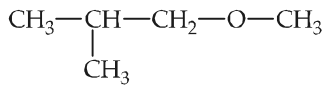
(b) Benzoic acid

(c) *o*-Nitrophenol

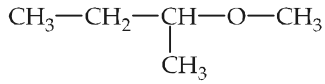
(d) Benzenesulphonic acid *(2014)*

9. Among the following ethers, which one will produce methyl alcohol on treatment with hot concentrated HI?

(a) 

(b) 

(c) $CH_3—CH_2—CH_2—O—CH_3$

(d) 

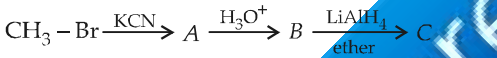
(NEET 2013)

10. Number of isomeric alcohols of molecular formula $C_6H_{14}O$ which give positive iodoform test is

(a) three (b) four
(c) five (d) two

(Karnataka NEET 2013)

11. In the following sequence of reactions



the end product (*C*) is

(a) acetone (b) methane
(c) acetaldehyde (d) ethyl alcohol

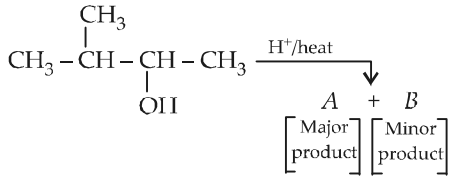
(2012)

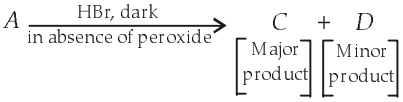
12. Which of the following compounds can be used as antifreeze in automobile radiators?

(a) Methyl alcohol (b) Glycol
(c) Nitrophenol (d) Ethyl alcohol

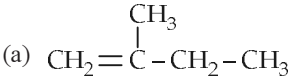
(Mains 2012)

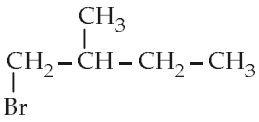
13. In the following reactions,

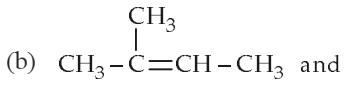
(i) 

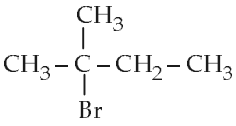
(ii) 

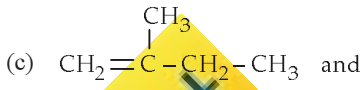
the major products (*A*) and (*C*) are respectively

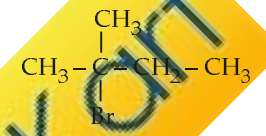
(a)  and



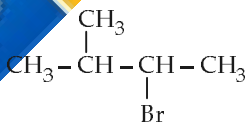
(b)  and



(c)  and



(d)  and



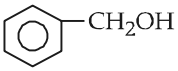
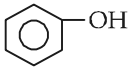
(2011)

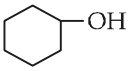
14. Given are cyclohexanol (I), acetic acid (II), 2,4,6-trinitrophenol (III) and phenol (IV). In these the order of decreasing acidic character will be

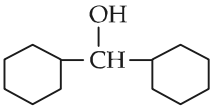
(a) III > II > IV > I (b) II > III > I > IV
(c) II > III > IV > I (d) III > IV > II > I

(2010)

15. Which of the following compounds has the most acidic nature?

(a)  (b) 

(c) 

(d) 

(2010)

16. Among the following four compounds

(i) Phenol
(ii) Methyl phenol
(iii) *Meta*-nitrophenol
(iv) *Para*-nitrophenol

The acidity order is
(a) (iv) > (iii) > (i) > (ii)
(b) (iii) > (iv) > (i) > (ii)
(c) (i) > (iv) > (iii) > (ii)
(d) (ii) > (i) > (iii) > (iv) *(2010)*

17. When glycerol is treated with excess of HI, it produces
(a) 2-iodopropane (b) allyl iodide
(c) propene (d) glycerol triiodide
(Mains 2010)

18. Following compounds are given
(i) CH_3CH_2OH (ii) CH_3COCH_3
(iii) $CH_3-\underset{\displaystyle CH_3}{\overset{\displaystyle |}{C}}HOH$ (iv) CH_3OH

Which of the above compound(s), on being warmed with iodine solution and NaOH, will give iodoform?
(a) (i), (iii) and (iv) (b) Only (ii)
(c) (i), (ii) and (iii) (d) (i) and (ii)
(Mains 2010)

19. Match the compounds given in List I with their characteristic reactions given in List II. Select the correct option.

List I (Compounds)	**List II (Reactions)**
A. $CH_3(CH_2)_3NH_2$	(i) Alkaline hydrolysis
B. $CH_3C{\equiv}CH$	(ii) With KOH (alcohol) and $CHCl_3$ produces bad smell
C. $CH_3CH_2COOCH_3$	(iii) Gives white ppt. with ammoniacal $AgNO_3$
D. $CH_3CH(OH)CH_3$	(iv) With Lucas reagent cloudiness appears after 5 minutes

(a) A-(ii), B-(i), C-(iv), D-(iii)
(b) A-(iii), B-(ii), C-(i), D-(iv)
(c) A-(ii), B-(iii), C-(i), D-(iv)
(d) A-(iv), B-(ii), C-(iii), D-(i)
(Mains 2010)

20. Consider the following reaction:

$$\text{Ethanol} \xrightarrow{PBr_3} X \xrightarrow{\text{alc. KOH}} Y \xrightarrow[\text{(ii) } H_2O,\ \text{heat}]{\text{(i) } H_2SO_4,\ \text{room temperature}} Z$$

the product Z is
(a) $CH_3CH_2-O-CH_2-CH_3$
(b) $CH_3-CH_2-O-SO_3H$
(c) CH_3CH_2OH
(d) $CH_2{=}{=}CH_2$ *(2009)*

21. $HOCH_2{\cdot}CH_2OH$ on heating with periodic acid gives
(a) 2HCOOH (b) $\begin{matrix}CHO\\|\\CHO\end{matrix}$
(c) $2\ \begin{matrix}H\\H\end{matrix}\!\!>\!C{=}O$ (d) $2CO_2$ *(2009)*

22. Consider the following reaction:

$$\text{Phenol} \xrightarrow{\text{Zn dust}} X \xrightarrow[\text{Anhyd. } AlCl_3]{CH_3Cl} Y \xrightarrow{\text{Alkaline } KMnO_4} Z$$

the product Z is
(a) benzaldehyde (b) benzoic acid
(c) benzene (d) toluene *(2009)*

23. In the reaction:

$$CH_3-\underset{\displaystyle CH_3}{\overset{\displaystyle |}{C}}H-CH_2-O-CH_2-CH_3 + HI \xrightarrow{\text{heated}}$$

Which of the following compounds will be formed?

(a) $CH_3-\underset{\displaystyle CH_3}{\overset{\displaystyle |}{C}}H-CH_3 + CH_3CH_2OH$

(b) $CH_3-\underset{\displaystyle CH_3}{\overset{\displaystyle |}{C}}H-CH_2OH + CH_3CH_3$

(c) $CH_3-\underset{\displaystyle CH_3}{\overset{\displaystyle |}{C}}H-CH_2OH + CH_3CH_2I$

(d) $CH_3-\underset{\displaystyle CH_3}{\overset{\displaystyle |}{C}}H-CH_2-I + CH_3CH_2OH$

(2007)

24. The general molecular formula, which represents the homologous series of alkanols is
(a) $C_nH_{2n+2}O$ (b) $C_nH_{2n}O_2$
(c) $C_nH_{2n}O$ (d) $C_nH_{2n+1}O$
(2006)

25. Ethylene oxide when treated with Grignard reagent yields

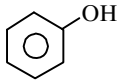
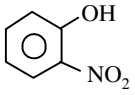
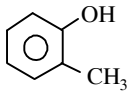
(a) primary alcohol
(b) secondary alcohol
(c) tertiary alcohol
(d) cyclopropyl alcohol. *(2006)*

26. The major organic product in the reaction is

$CH_3 - O - CH(CH_3)_2 + HI \rightarrow$ products

(a) $CH_3I + (CH_3)_2CHOH$
(b) $CH_3OH + (CH_3)_2CHI$
(c) $ICH_2OCH(CH_3)_2$
(d) $CH_3OC(CH_3)_2$ with I

(2006)

27. Which one of the following compounds is most acidic?
(a) $Cl - CH_2 - CH_2 - OH$
(b) 
(c) 
(d) 

(2005)

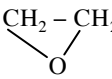
28. Which one of the following will not form a yellow precipitate on heating with an alkaline solution of iodine?
(a) $CH_3CH(OH)CH_3$
(b) $CH_3CH_2CH(OH)CH_3$
(c) CH_3OH
(d) CH_3CH_2OH *(2004)*

29. *n*-propyl alcohol and isopropyl alcohol can be chemically distinguished by which reagent
(a) PCl_5 (b) reduction
(c) oxidation with potassium dichromate
(d) ozonolysis. *(2002)*

30. When phenol is treated with $CHCl_3$ and NaOH, the product formed is
(a) benzaldehyde (b) salicylaldehyde
(c) salicylic acid (d) benzoic acid.
(2002)

31. Which of the following is correct?
(a) On reduction, any aldehyde gives secondary alcohol.
(b) Reaction of vegetable oil with H_2SO_4 gives glycerine.
(c) Alcoholic iodine with NaOH gives iodoform.
(d) Sucrose on reaction with NaCl gives invert sugar. *(2001)*

32. Iodoform test is not given by
(a) ethanal (b) ethanol
(c) 2-pentanone (d) 3-pentanone
(1998)

33. Reaction of  with *R*Mg*X* leads to the formation of
(a) RCH_2CH_2OH (b) $RCHOHCH_3$
(c) *R*CHOHR (d) 
(1998)

34. Which one of the following compounds is resistant to nucleophilic attack by hydroxyl ions?
(a) Diethyl ether (b) Acetonitrile
(c) Acetamide (d) Methyl acetate
(1998)

35. When 3,3-dimethyl-2-butanol is heated with H_2SO_4, the major product obtained is
(a) 2,3-dimethyl-2-butene
(b) *cis* and *trans* isomers of 2,3-dimethyl-2-butene
(c) 2,3-dimethyl-1-butene
(d) 3,3-dimethyl-1-butene. *(1995)*

36. On heating glycerol with conc. H_2SO_4, a compound is obtained which has bad odour. The compound is
(a) acrolein (b) formic acid
(c) allyl alcohol
(d) glycerol sulphate. *(1994)*

37. The compound which does not react with sodium is
(a) CH_3COOH (b) $CH_3CHOHCH_3$
(c) C_2H_5OH (d) CH_3OCH_3
(1994)

38. Ethanol and dimethyl ether form a pair of functional isomers. The boiling point of ethanol is higher than that of dimethyl ether, due to the presence of
(a) H-bonding in ethanol
(b) H-bonding in dimethyl ether
(c) CH_3 group in ethanol
(d) CH_3 group in dimethyl ether. *(1993)*

39. Increasing order of acid strength among *p*-methoxyphenol, *p*-methylphenol and *p*-nitrophenol is
(a) *p*-nitrophenol, *p*-methoxyphenol, *p*-methylphenol

(b) *p*-methylphenol, *p*-methoxyphenol, *p*-nitrophenol
(c) *p*-nitrophenol, *p*-methylphenol, *p*-methoxyphenol
(d) *p*-methoxyphenol, *p*-methylphenol, *p*-nitrophenol. *(1993)*

40. Which one of the following on oxidation gives a ketone?
(a) Primary alcohol
(b) Secondary alcohol
(c) Tertiary alcohol
(d) All of these. *(1993)*

41. What is formed when a primary alcohol undergoes catalytic dehydrogenation?
(a) Aldehyde (b) Ketone
(c) Alkene (d) Acid *(1993)*

42. When hydrochloric acid gas is treated with propene in presence of benzoyl peroxide, it gives
(a) 2-chloropropane
(b) allyl chloride
(c) no reaction
(d) *n*-propyl chloride. *(1993)*

43. How many isomers of $C_5H_{11}OH$ will be primary alcohols?
(a) 5 (b) 4
(c) 2 (d) 3 *(1992)*

44. Methanol is industrially prepared by
(a) oxidation of CH_4 by steam at 900°C
(b) reduction of HCHO using $LiAlH_4$
(c) reaction HCHO with a solution of NaOH
(d) reduction of CO using H_2 and $ZnO–Cr_2O_3$. *(1992)*

45. HBr reacts fastest with
(a) 2-Methylpropan-1-ol
(b) Methylpropan-2-ol
(c) propan-2-ol
(d) propan-1-ol. *(1992)*

46. When phenol is treated with excess bromine water. It gives
(a) *m*-bromophenol
(b) *o*-and *p*-bromophenols
(c) 2,4-dibromophenol
(d) 2,4,6-tribromophenol. *(1992)*

47. The compound which reacts fastest with Lucas reagent at room temperature is
(a) butan-1-ol
(b) butan-2-ol
(c) 2-methylpropan-1-ol
(d) 2-methylpropan-2-ol. *(1989)*

48. Which one of the following compounds will be most readily attacked by an electrophile?
(a) Chlorobenzene (b) Benzene
(c) Phenol (d) Toluene *(1989)*

49. Propene, $CH_3CH=CH_2$ can be converted into 1-propanol by oxidation. Indicate which set of reagents amongst the following is ideal for the above conversion?
(a) $KMnO_4$ (alkaline)
(b) Osmium tetroxide (OsO_4/CH_2Cl_2)
(c) B_2H_6 and alk. H_2O_2
(d) O_3/Zn. *(1989)*

50. Phenol is heated with $CHCl_3$ and aqueous KOH when salicylaldehyde is produced. This reaction is known as
(a) Rosenmund's reaction
(b) Reimer-Tiemann reaction
(c) Friedel-Crafts reaction
(d) Sommelet reaction. *(1989,88)*

51. Lucas reagent is
(a) conc. HCl and anhydrous $ZnCl_2$
(b) conc. HNO_3 and hydrous $ZnCl_2$
(c) conc. HCl and hydrous $ZnCl_2$
(d) conc. HNO_3 and anhydrous $ZnCl_2$. *(1988)*

Answer Key

1.	(b)	**2.**	(c)	**3.**	(c)	**4.**	(c)	**5.**	(d)	**6.**	(c)	**7.**	(b)	**8.**	(c)	**9.**	(a)	**10.**	(b)
11.	(d)	**12.**	(b)	**13.**	(b)	**14.**	(a)	**15.**	(b)	**16.**	(a)	**17.**	(a)	**18.**	(c)	**19.**	(c)	**20.**	(c)
21.	(c)	**22.**	(b)	**23.**	(c)	**24.**	(a)	**25.**	(a)	**26.**	(a)	**27.**	(c)	**28.**	(c)	**29.**	(c)	**30.**	(b)
31.	(c)	**32.**	(d)	**33.**	(a)	**34.**	(a)	**35.**	(a)	**36.**	(a)	**37.**	(d)	**38.**	(a)	**39.**	(d)	**40.**	(b)
41.	(a)	**42.**	(a)	**43.**	(b)	**44.**	(d)	**45.**	(b)	**46.**	(d)	**47.**	(d)	**48.**	(c)	**49.**	(c)	**50.**	(b)
51.	(a)																		