

## QUESTION BANK

### MULTIPLE CHOICE QUESTIONS (MCQ):

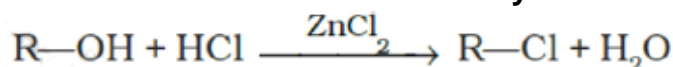
**Q.1 Give IUPAC name of the compound**

- (a) 2-Chloro-5-hydroxyhexan (b) 2-Hydroxy-5-chlorohexane  
(c) 5-Chlorohexan-2-ol (d) 2-Chlorohexan-5-ol

**Q.2 Which one is secondary alcohol?**

- (a) (i) (b) (ii) (c) (iii) (d) (iv)

**Q.3. What is the correct order of reactivity of alcohols in the following reaction?**



- (a)  $1^\circ > 2^\circ > 3^\circ$  (b)  $3^\circ > 2^\circ > 1^\circ$  (c)  $2^\circ > 1^\circ > 3^\circ$  (d)  $3^\circ > 1^\circ > 2^\circ$

**Q.4. The process of converting alkyl halides into alcohols involves \_\_\_\_\_.**

- (a) Substitution reaction (b) Addition reaction  
(c) Dehydrohalogenation reaction (d) Rearrangement reaction

**Q 5. The compound which gives the most stable carbonium ion on dehydration is**

—

- (a)  $(\text{CH}_3)_2\text{CHCH}_2\text{OH}$  (b)  $(\text{CH}_3)_3\text{COH}$   
(c)  $\text{CH}_3\text{CH}_2\text{CH}_2\text{CH}_2\text{OH}$  (d)  $\text{CH}_3\text{CH}(\text{OH})\text{CH}_2\text{CH}_3$

**Q6. Cyclohexene is best prepared from cyclohexanol by which of the following —**

- (a) Conc.  $\text{H}_3\text{PO}_4$  (b) Conc.  $\text{HCl}/\text{ZnCl}_2$   
(c) Conc.  $\text{HCl}$  (d) Conc.  $\text{HBr}$

**Q 7. Acetone reacts with Grignard reagent to form —**

- (a)  $3^\circ$  alcohol (b)  $2^\circ$  alcohol  
(c) Ether (d) No reaction

**Q 8. The alcohol that reacts fastest with Lucas reagent at room temperature is —**

- (a) propan-2-ol (b) butan-1-ol  
(c) 2-methyl propan-1-ol (d) 2-methyl propan-2-ol

**Q 9. During dehydration of alcohols to alkenes by heating with cone.  $\text{H}_2\text{SO}_4$  the initial Step is —**

- (a) Formation of an ester (b) Protonation of alcohol  
(c) Formation of carbocation (d) Elimination of water

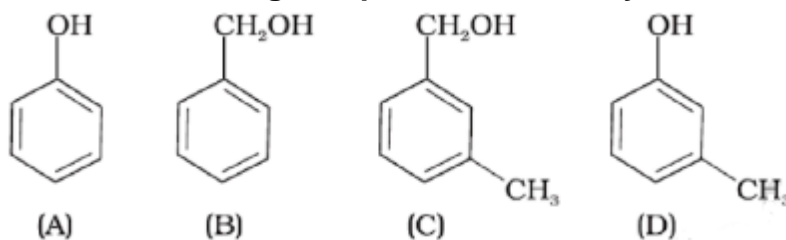
**Q 10. Which of the following is true?**

- (a) Lower alcohols are liquid at room temperature and the higher ones are solid  
(b) Lower alcohols and higher alcohols, both are liquid at room temperature  
(c) Higher alcohols are liquid at room temperature and the lower ones are solid  
(d) Both lower and higher alcohols are solid at room temperature

**Q 11.  $\text{CH}_3\text{CH}_2\text{OH}$  can be converted into  $\text{CH}_3\text{CHO}$  by \_\_\_\_\_.**

- (a) Catalytic hydrogenation  
(b) Treatment with  $\text{LiAlH}_4$   
(c) Treatment with pyridiniumchlorochromate  
(d) Treatment with  $\text{KMnO}_4$

Q 12. Which of the following compounds is a Benzylic alcohol?



- (a) A, B, C, D      (b) A, D      (c) B, C      (d) A

Q 13. Arrange the following compounds in increasing order of boiling point.

Propan-1-ol, butan-1-ol, butan-2-ol, pentan-1-ol

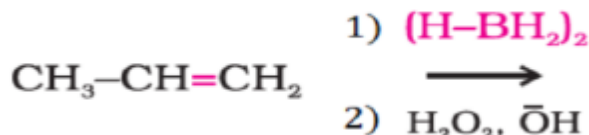
- (a) Propan-1-ol, butan-2-ol, butan-1-ol, pentan-1-ol  
(b) Propan-1-ol, butan-1-ol, butan-2-ol, pentan-1-ol  
(c) Pentan-1-ol, butan-2-ol, butan-1-ol, propan-1-ol  
(d) Pentan-1-ol, butan-1-ol, butan-2-ol, propan-1-ol

Q 14. Which of the following reagents can be used to oxidise primary alcohols to aldehydes?

- (i)  $\text{CrO}_3$  in anhydrous medium.  
(ii)  $\text{KMnO}_4$  in acidic medium.  
(iii) Pyridiniumchlorochromate.  
(iv) Heat in the presence of Cu at 573K.

- (a) (i), (ii) (b) (iii), (iv) (c) (ii), (iii), (iv) (d) (i), (iii), (iv)

Q 15. What is the product of following reaction?



- (a) Propan-2-ol      (b) Propan-1-ol  
(c) Propane-1, 2-diol      (d) Prop-1-en-3-ol

Q 16. How many alcohols with molecular formula  $\text{C}_4\text{H}_{10}\text{O}$  are chiral in nature?

- (a) 1 (b) 2 (c) 3 (d) 4

Q 17. Which of the following compounds is oxidised to butan-2-one?

- (a) propan-2-ol (b) butan-1-ol  
(c) butan-2-ol (d) pentan-2-ol

Q 18. Which of the following are used to convert  $\text{RCHO}$  into  $\text{RCH}_2\text{OH}$ ?

- (a)  $\text{H}_2/\text{Pd}$  (b)  $\text{LiAlH}_4$  (c)  $\text{NaBH}_4$  (d) All of these

Q19. Benzene Diazonium chloride is hydrolysed to \_\_\_\_\_ by warming with water.

- (a) Aniline (b) Chlorobenzene  
(c) P-hydroxy diazobenzene (d) Phenol

Q 20. When phenol is treated with conc. Nitric acid in the presence of conc.  $\text{H}_2\text{SO}_4$ ,

the products is

- (a) p- nitrophenol (b) m- nitrophenol  
(c) Picric acid (d) o- nitrophenol

Q 21. Which of the following will gives phenol with CaO and NaOH?

- (a) Benzoic acid (b) Salicylic acid  
(c) cinnamic acid (d) Picric acid

**Q. 22. Phenol on distillation with zinc dust gives**

- (a) Benzene (b) Benzaldehyde  
(c) Benzophenone (d) Benzoic acid

**Q.23. Oxidation of phenol with chromic acid produces \_\_\_\_\_.**

- (a) Benzoic acid (b) Benzene  
(c) Benzoquinone (d) Picric acid

**Q 24. Arrange the following compounds in increasing order of their acid strength: Propan-1-ol, 2,4,6- trinitrophenol, 3-nitrophenol, 3,5-dinitrophenol, phenol, 4-methylphenol.**

- (a) 4-methylphenol, phenol, , 3,5-dinitrophenol, 2,4, 6-trinitrophenol, Propan-1-ol, 3-nitrophenol  
(b) phenol, 3-nitrophenol, 3,5-dinitrophenol, 2,4, 6-trinitrophenol, Propan-1-ol, 4-methylphenol  
(c) 4-methylphenol, phenol, 3-nitrophenol, 3,5-dinitrophenol, 2,4, 6-trinitrophenol, Propan-1-ol  
(d) Propan-1-ol, 4-methylphenol, phenol, 3-nitrophenol, 3,5-dinitrophenol, 2,4, 6-trinitrophenol.

**Q 25. The highest  $pK_a$  value compound in following is**

- (a) p-Nitrophenol (b) Phenol  
(c) o-Cresol (d) m-Nitrophenol

**Q26. Cumene (isopropylbenzene) is oxidised in the presence of air to cumene hydroperoxide. It is converted to \_\_\_\_\_ by treating it with dilute acid.**

- (a) Phenol and acetone (b) Only Phenol  
(c) Phenol and Water (d) Only acetone

**Q27. Which of the following reagents may be used to distinguish between phenol and benzoic acid ?**

- (a) Tollen's reagent (b) Aqueous NaOH  
(c) Neutral  $FeCl_3$  (d) Molisch reagent

**Q28. The intramolecular hydrogen bond is present in**

- (a) phenol (b) p- cresol  
(c) o-nitrophenol (d) p-nitrophenol

**Q29. What product is formed when phenol is treated with  $CHCl_3$  and NaOH?**

- (a) 3-Hydroxybenzaldehyde (b) 2- Hydroxybenzoic acid  
(c) 3- Hydroxybenzoic acid (d) 2-Hydroxybenzaldehyde

**Q30. Phenol reacts with bromine in  $CS_2$  at low temperature to give**

- (a) m-bromophenol (b) o-and p-bromophenol  
(c) p-bromophenol (d) 2,4,6-tribromophenol

**Q31. On treating phenol with chloroform in the presence of sodium hydroxide, a  $-CHO$  group is introduced at ortho position of benzene ring. This reaction is known as**

- (a) Reimer - Tiemann reaction. (b) Kolbe's reaction  
(c) Williamson synthesis (d) Etard reaction

**Q32. While separating a mixture of ortho and para nitrophenols by steam distillation, name the isomer/s which will be steam volatile**

- (a) ortho and para nitrophenol (b) ortho nitrophenol  
 (c) para nitrophenol (d) first para nitrophenol then ortho nitro phenol  
 steam volatile

**Q33. Phenol is often termed benzenol and what other common organic chemical name?**

- (a) Carboic acid (b) Acetic acid  
 (c) Carboxylic acid (d) Benzoic acid

**Q34. Benzene reacts with n-propyl chloride(1-chloro propane) to form P , P reacts with O<sub>2</sub> followed by acidic hydrolysis gives Q and R. Identify P,Q and R?**

- (a) P= n-propyl benzene Q= benzaldehyde R= ethanol  
 (b) P= propyl benzene Q= benzaldehyde R= benzoic acid  
 (c) P= isopropylbenzene Q=phenol R=isopropyl alcohol  
 (d) P=isopropylbenzene Q=phenol R=acetone

**Q35. Reaction of phenol with chloroform in presence of dilute sodium hydroxide finally introduces which one of the following functional group?**

- (a) –COOH (b) –CHCl<sub>2</sub> (c) –CHO (d) –CH<sub>2</sub>Cl

**Q36. Which of the following compounds will react with sodium hydroxide solution in water?**

- (a) C<sub>6</sub>H<sub>5</sub>OH (b) C<sub>6</sub>H<sub>5</sub>CH<sub>2</sub>OH  
 (c) (CH<sub>3</sub>)<sub>3</sub>COH (d) C<sub>2</sub>H<sub>5</sub>OH

**Q37. Phenol does not undergo nucleophilic substitution reaction easily due to :**

- (a) Acidic nature of phenol (b) partial double bond character of C-OH bond  
 (c) Partial double bond character of C-C bond (d) instability of phenoxide ion

**Q38. IUPAC name of m-cresol is**

- (a) 3-methylphenol (b) 3-chlorophenol  
 (c) 3-methoxyphenol (d) benzene 1,3-diol

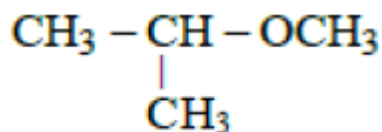
**Q 39 Number of metamers represented by molecular formula C<sub>4</sub>H<sub>10</sub>O is –**

- (a) 4 (b) 3 (c) 2 (d) 1

**Q40. An example of a compound with functional group – O – is :**

- (a) acetic acid (b) methyl alcohol  
 (c) diethyl ether (d) acetone

**Q41. IUPAC name of the compound**



- (a) 1-methoxy-1-methylethane (b) 2-methoxy-2-methylethane  
 (c) 2-methoxypropane (d) isopropylmethyl ether

**Q42. Which of the following is an example of unsymmetrical ether?**

- (a) C<sub>2</sub>H<sub>5</sub>OC<sub>2</sub>H<sub>5</sub> (b) C<sub>6</sub>H<sub>5</sub>OC<sub>6</sub>H<sub>5</sub>  
 (c) C<sub>6</sub>H<sub>5</sub>OC<sub>2</sub>H<sub>5</sub> (d) CH<sub>3</sub>OCH<sub>3</sub>

**Q43. Ether which is liquid at room temperature is**

- (a) C<sub>2</sub>H<sub>5</sub>OCH<sub>3</sub> (b) CH<sub>3</sub>OCH<sub>3</sub>  
 (c) C<sub>2</sub>H<sub>5</sub>OC<sub>2</sub>H<sub>5</sub> (d) None of these

**Q44. Ether can be used**

- (a) as a general anaesthetic (b) as a refrigerant  
(c) in perfumery (d) all of the above

**Q45. Which of the following compound is soluble in ether?**

- (a) Oils and fats (b) Water (c) NaCl (d)  $\text{PCl}_5$

**Q46. An ether is more volatile than an alcohol having the same molecular formula.**

**This is due to**

- (a) Dipolar character of ethers  
(b) Alcohols having resonance structures  
(c) Inter-molecular hydrogen bonding in ethers  
(d) Inter-molecular hydrogen bonding in alcohols

**Q47. Oxygen atom in ether is**

- (a) Very active (b) replaceable  
(c) Comparatively inert (d) active

**Q48. The ether that undergoes electrophilic substitution reactions is**

- (a)  $\text{CH}_3\text{OC}_2\text{H}_5$  (b)  $\text{C}_6\text{H}_5\text{OCH}_3$   
(c)  $\text{CH}_3\text{OCH}_3$  (d)  $\text{C}_2\text{H}_5\text{OC}_2\text{H}_5$

**Q49. Which one is formed when sodium phenoxide is heated with ethyl iodide ?**

- (a) Phenetole (b) Ethyl phenyl alcohol  
(c) Phenol (d) None of these

**Q50. Williamson's synthesis is used to prepare**

- (a) Acetone (b) diethyl ether (c) P.V.C. (d) bakelite

**Q51. The reaction of sodium ethoxide with ethyl iodide to form diethyl ether is termed**

- (a) electrophilic substitution (b) nucleophilic substitution  
(c) electrophilic addition (d) radical substitution

**Q52. Which of the following cannot be made by using Williamson's synthesis?**

- (a) Methoxybenzene (b) Benzyl p-nitrophenyl ether  
(c) Methyl tertiary butyl ether (d) Di-tert-butyl ether

**Q53. Diethyl ether can be decomposed by heating with**

- (a) HI (b) NaOH (c) Water (d)  $\text{KMnO}_4$

**Q54. The major organic product in the reaction,  $\text{CH}_3 - \text{O} - \text{CH}(\text{CH}_3)_2 + \text{HI} \rightarrow$  Product is**

- (a)  $\text{ICH}_2\text{OCH}(\text{CH}_3)_2$  (b)  $\text{CH}_3\text{O C}(\text{CH}_3)_2$   
(c)  $\text{CH}_3\text{I} + (\text{CH}_3)_2\text{CHOH}$  (d)  $\text{CH}_3\text{OH} + (\text{CH}_3)_2\text{CHI}$

**Q55. An aromatic ether is not cleaved by HI even at 525 K. The compound is**

- (a)  $\text{C}_6\text{H}_5\text{OCH}_3$  (b)  $\text{C}_6\text{H}_5\text{OC}_6\text{H}_5$   
(c)  $\text{C}_6\text{H}_5\text{OC}_3\text{H}_7$  (d) Tetrahydrofuran

**Q56. When 2-methoxypropane is heated with HI, in the mole ratio 1 : 1, the major products formed are**

- (a) Methanol and 2-iodopropane (b) Methyl iodide and 2-propanol  
(c) Methyl iodide and 2-iodopropane (d) Methanol and 2-propanol

## Answer Key

### MULTIPLE CHOICE QUESTIONS (MCQ):

Q no	1	2	3	4	5	6	7	8	9	10
Ans	C	D	B	A	B	A	A	D	B	A
Q no	11	12	13	14	15	16	17	18	19	20
Ans	C	C	D	D	B	A	C	D	D	C
Q no	21	22	23	24	25	26	27	28	29	30
Ans	B	A	C	D	C	A	C	C	D	B
Q no	31	32	33	34	35	36	37	38	39	40
Ans	A	B	A	D	C	A	B	A	B	C
Q no	41	42	43	44	45	46	47	48	49	50
Ans	C	C	C	D	A	D	C	B	A	B
Q no	51	52	53	54	55	56				
Ans	B	D	A	C	B	B				