ABHINAV ACADEMY

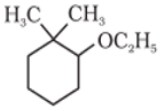
UDUPI

CET25C7 ALCOHOLS PHENOLS AND ETHERS

Class 12 - Chemistry

Time Allowed: 1 hour and 30 minutes **Maximum Marks: 48**

1. Give IUPAC names of the following compound: **[1]**



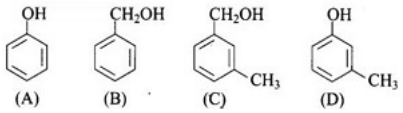
a) 1 - Ethoxy - 2, 2 - dimethylcyclohexane

b) 6 - Ethoxy – 6, 6 - dimethylcyclohexane

c) 2 - Ethoxy - 1, 1 - dimethylcyclohexane

d) 1 - Ethoxy - 6, 6 - dimethylcyclohexane

2. Which of the following compounds is aromatic alcohol? **[1]**



a) B, C

b) A, D

c) A, B, C, D

d) A

3. IUPAC name of m-cresol is _____. **[1]**

a) 3-chlorophenol

b) benzene-1, 3-diol

c) 3-methoxyphenol

d) 3-methylphenol

4. Alkenes react with water in the presence of acid as catalyst to form alcohols. **[1]**

a) nucleophilic attack of water on carbocation

b) Protonation of alkene and carbocation

c) Deprotonation to form alcohol

d) All of these

5. The reaction $C_2H_5ONa + C_2H_5I \rightarrow C_2H_5OC_2H_5 + NaI$ is known as: **[1]**

a) Williamson's synthesis

b) Grignard's synthesis

c) Wurtz's synthesis

d) Kolbe's synthesis

6. The preparation of ethers by acid dehydration of secondary or tertiary alcohols is not a suitable method. This is so because: **[1]**

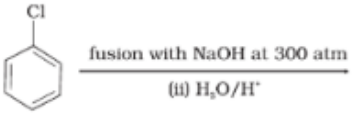
a) Alkyl group is hindered.

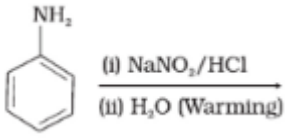
b) Alkyl group should be non-hindered.

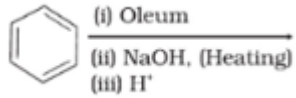
c) Alkyl group should be unhindered.

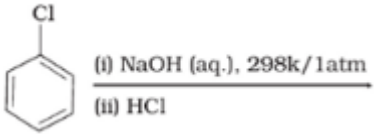
d) Elimination competes over substitution and alkenes are easily formed.

7. Which of the following reactions will yield phenol? **[1]**

i. 

ii. 

iii. 

iv. 

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

8. The conversion of an alkyl halide into alcohol by aqueous NaOH is classified as **[1]**

a) a dehydrohalogenation reaction
b) a substitution reaction
c) an addition reaction
d) a dehydration reaction

9. CH_3CONH_2 on reaction with NaOH and Br_2 in alcoholic medium gives: **[1]**

a) CH_3NH_2
b) $CH_3CH_2NH_2$
c) CH_3COONa
d) CH_3CH_2Br

10. Arrange the following compounds in increasing order of boiling point: Propan-1-ol, butan-1-ol, butan-2-ol, pentan-1-ol **[1]**

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

11. When diethyl ether is heated with excess of HI, it produces: **[1]**

a) ethanol
b) iodoform
c) ethyl iodide
d) methyl iodide

12. Grignard reagent (CH_3MgBr) on reaction CH_3OH will give: **[1]**

a) Aldehyde
b) Ethane
c) Ester
d) Methane

13. Phenol on distillation with zinc dust gives **[1]**

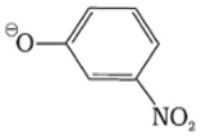
a) benzaldehyde
b) benzophenone
c) benzene
d) benzonic acid

14. Give IUPAC name of the compound given below. **[1]**

$$CH_3 - \underset{\underset{Cl}{|}}{C}H - CH_2 - CH_2 - \underset{\underset{OH}{|}}{C}H - CH_3$$

a) 2 – Chloro – 5 – hydroxyhexane
b) 5 – Chlorohexan – 2 – ol
c) 2 – Hydroxy – 5 – chlorohexane
d) 2 – Chlorohexan – 5 – ol

15. Which of the following species can act as the strongest base? **[1]**

a) 

b) $^{\ominus}OR$

c) $^{\ominus}OH$

d) $^{\ominus}C_6H_5$

16. One of the following alcohols do not undergo oxidation reaction: **[1]**

a) Primary alcohol and Secondary alcohol

b) Tertiary alcohol

c) Secondary alcohol

d) Primary alcohol

17. In the reaction $R - OH + HCl \xrightarrow{ZnCl_2} RCl + H_2O$, what is the correct order of reactivity of alcohol? **[1]**

a) $1^o > 2^o > 3^o$

b) $3^o > 1^o > 2^o$

c) $1^o < 2^o < 3^o$

d) $1^o > 3^o > 2^o$

18. Which of the following alkenes on acid catalysed hydration gives a tertiary alcohol? **[1]**

a) 1-Butene

b) 2-Methylpropene

c) 2-Butene

d) Propene

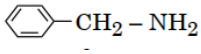
19. What is the major product formed when ethanol is dehydrated with concentrated H_2SO_4 at 413K. **[1]**

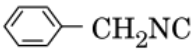
a) Ethoxyethane

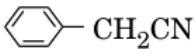
b) Methoxymethane

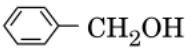
c) Ethene

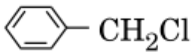
d) Methoxyethane

20.  on heating with $CHCl_3$ and alcoholic KOH gives foul smell of **[1]**

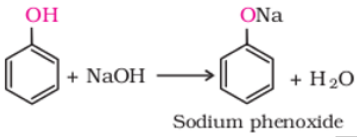
a) 

b) 

c) 

d) 

21. In the reaction **[1]**



a) Phenols are acidic in nature.

b) They can donate a proton to a stronger base

c) Cleavage of O - H bond

d) All of these

22. 3-Pentanol is an example of: **[1]**

a) Primary alcohol

b) Secondary alcohol

c) Tertiary alcohol

d) Aromatic alcohol

23. An organic compound X is oxidized by using acidified $K_2Cr_2O_7$. The product obtained reacts with Phenyl hydrazine but does not answer the silver mirror test. The possible structure of X is: **[1]**

a) $(CH_3)_2CHOH$

b) $(CH_4)_2CH_3OH$

c) CH_3CHO

d) CH_3CH_2OH

24. With dilute nitric acid at low temperature (298 K), phenol yields **[1]**

a) a mixture of ortho and para nitro phenols
b) p – Nitrophenol
c) m – Nitrophenol
d) o – Nitrophenol

25. The correct IUPAC name of $CH_3 - \overset{\overset{CH_3}{|}}{\underset{\underset{OH}{|}}{C}} - CH_2CH_3$ is **[1]**

a) 2-Methylbutan-2-ol
b) 3-Methylbutan-3-ol
c) 2,2-Dimethylpropanol
d) tert-butyl alcohol

26. Which of the following reagents can be used to oxidise primary alcohols to aldehydes? **[1]**

a) All of these
b) CrO_3 in an anhydrous medium.
c) Heat in the presence of Cu at 573K.
d) Pyridinium chlorochromate.

27. Choose the compound which is more acidic than phenol: **[1]**

a) o-nitrophenol
b) o-methylphenol
c) o-methoxyphenol
d) ethanol

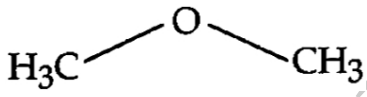
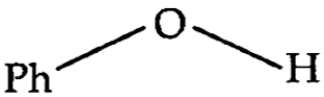
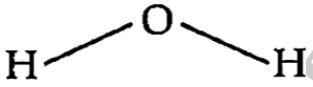
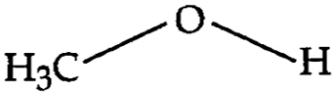
28. Which of the following alcohols will not undergo oxidation? **[1]**

a) Butan-2-ol
b) 2-Methylbutan-2-ol
c) Butanol
d) 3-Methylbutan-2-ol

29. Anisole can be prepared by the action of methyl iodide on sodium phenate. The reaction is called **[1]**

a) Fittigs reaction
b) Wurtzs reaction
c) Williamsons reaction
d) Etards reaction

30. The compounds that is most difficult to protonate is: **[1]**

a) 
b) 
c) 
d) 

31. IUPAC name of the following compound is $CH_3 - \underset{\underset{CH_3}{|}}{CH} - OCH_3$ is _____. **[1]**

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

32. The IUPAC name of anisole is: **[1]**

a) Methyl phenyl ether
b) Methoxybenzene
c) Ethoxybenzene
d) 2-methyltoluene

33. Monochlorination of toluene in sunlight followed by hydrolysis by aq. NaOH yields **[1]**

a) benzyl alcohol
b) o-cresol
c) 2,4-dihydroxytoluene
d) m-cresol

34. When diethyl ether is heated with excess of HI, it produces : **[1]**

a) ethyl iodide
b) ethanol

c) methyl iodide

d) iodoform

35. How many alcohols with molecular formula $C_4H_{10}O$ are chiral in nature? **[1]**

a) 1

b) 4

c) 3

d) 2

36. Aspirin is obtained by the acetylation of which of the following compounds? **[1]**

a) Acetyl salicylic acid

b) Salicylaldehyde

c) Salicylic acid

d) Phenol

37. Williamson's synthesis is used for the preparation of **[1]**

a) aldehydes

b) ethers

c) alkyl halides

d) alcohols

38. An organic compound containing oxygen, upon oxidation forms a carboxylic acid as the only organic product with its molecular mass higher by 14 units. The organic compound is _____. **[1]**

a) a ketone

b) a primary alcohol

c) an aldehyde

d) a secondary alcohol

39. Lucas reagent is? **[1]**

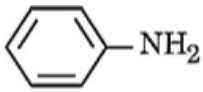
a) anhydrous $PdCl_2$ and conc.HCl.

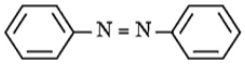
b) anhydrous $AlCl_3$ and conc.HCl.

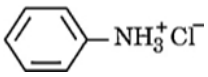
c) anhydrous CaC_2 and conc. HCl.

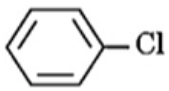
d) anhydrous $ZnCl_2$ and conc. HCl.

40. When nitrobenzene is heated with tin and concentrated HCl, the product formed is: **[1]**

a) 

b) 

c) 

d) 

41. One mole of an organic compound 'A' with the formula C_3H_8O reacts completely with two moles of HI to form X and Y. When 'Y' is boiled with aqueous alkali forms Z. Z answers the iodoform test. The compound 'A' is _____. **[1]**

a) methoxyethane

b) ethoxyethane

c) Propan – 2 – o1

d) Propan – 1 – o1

42. Which of the following compounds will react with sodium hydroxide solution in water? **[1]**

a) $C_6H_5CH_2OH$

b) $(CH_3)_3COH$

c) C_2H_5OH

d) C_6H_5OH

43. Alcoholic compounds react: **[1]**

a) only as nucleophiles.

b) both as nucleophiles and electrophiles.

c) only as electrophiles.

d) None of these

44. The major product of acid catalysed dehydration of 1-methylcyclohexanol is: **[1]**

a) 1-methylenecyclohexane

b) 1-methylcyclohexene

c) 1-methylcyclohexane

d) 1-cyclohexylmethanol

45. Williamson synthesis is used to obtain: **[1]**

a) Ether

b) Primary alcohol

c) Aldehyde

d) Ketone

46. Reaction of 1-phenyl-2-chloropropane with alcoholic KOH gives mainly: **[1]**

a) 3-phenylpropene

b) 1-phenylpropene

c) 1-phenylypropan-2-ol

d) 1-phenylpropan-3-ol

47. Which of the following is most acidic? **[1]**

a) Cyclohexanol

b) Phenol

c) m – Chlorophenol

d) Benzyl alcohol

48. For the conversion of propene into 1-propanol, which of the following reagents and conditions should be used? **[1]**

a) B_2H_6 ; H_2O_2/OH^-

b) H_2O/H^+

c) Dilute H_2SO_4

d) Conc. H_2SO_4 ; H_2O and heat